

EARLY PUBLIC HOUSING IN MACAU AND MODERN HERITAGE

from Colonial to Colloquial Architecture (1920-1980)

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Politecnico di Torino

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[Caption for warp-around Cover- North of Macau Peninsula in the 1970s, with several examples of Public Housing Estates discussed in this thesis. Photography by Lei Chiu Vang from Terence Lei's personal library]

ABSTRACT

The Special Administrative Region of Macau is known for its history of charity work, cultural diversity and urban density. It stands apart from other cities formerly under Portuguese colonial rule due to its location in the South China Sea, in isolation from other Portuguese colonial possessions, and its long term status as a leased trading post. This specificity is evident in the housing initiatives undertaken by the provincial Urbanism Department in the 1960s, which operated under the mandate of the metropolitan Overseas Department in Lisbon. By examining early public housing estates in both Macau and Hong Kong, this thesis identifies a distinct style of Tropical Modernism in the Pearl River Delta. It highlights how this style in Macau contrasts with that found in other Portuguese territories. Central to this study is the Resettlement Housing Block (1963-66) by architects Maria Natália Gomes and Manuel Vicente, and the understanding of its impact in Macau. This project became a prototype for the urban lifestyle and the construction of the city. The research argues for the architectural and cultural significance of the Resettlement Housing Block and advocates for the preservation and restoration of one of the remaining buildings to maintain Macau's continued heritage identity.

Keywords: Public Housing; Modern Architecture Heritage; Macau

This thesis uses material from physical and digital archives, as well as images from personal collections, all cited accordingly. Generative AI tools were used for editorial support, exclusively for translation of sources in Chinese.

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To my Mother, the first believer of my talent and creativity, for the constant support and love I needed to complete this. To my Father, my best friend, for the casual anecdotes that turned essential to this thesis, and our adventures in between. To both of them and my grandparents, all architects, who paved the way for discovering my passions.

But most of all, to my grandmother, dear Votá, Maria Natália Gomes, who deserves a confident advocate on her side, and for her work to be highlighted next to the greats she worked alongside.

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0 INTRODUCTION

0.1 Preface - Macau Public Housing & Modernism

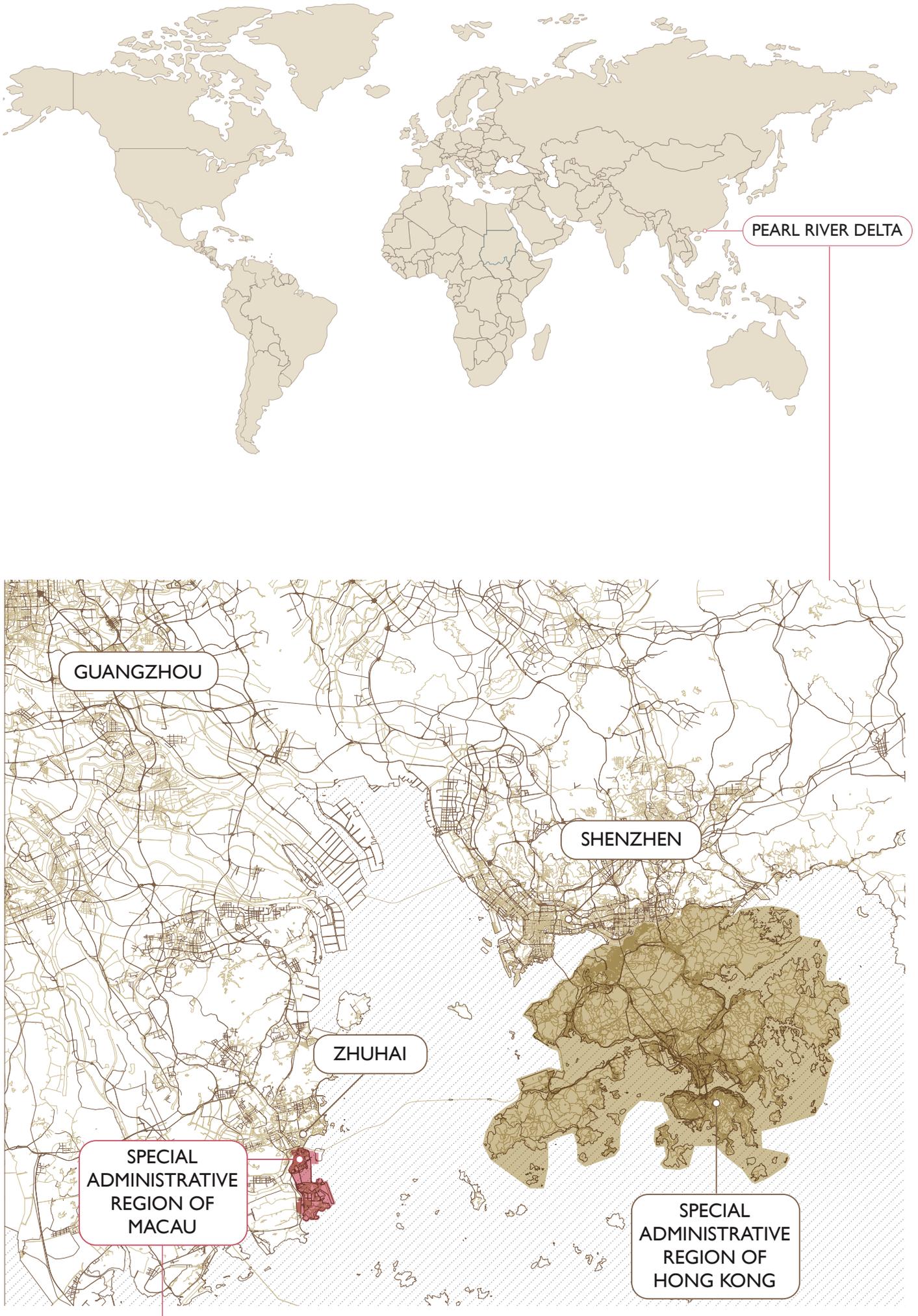
Macau is located in the south of China, within the Pearl River Delta. Close to the commercial hub of Guangzhou, the Portuguese rented the small peninsula in the 16th century, and slowly populated it along with the local fishing villages that existed in the area. The city has a strong connection to its heritage due to its unique 400-year history, and the melting pot of cultures it has housed over the centuries, from Portuguese and Chinese to influences from other areas under Portuguese colonial influence, such as Mozambique, Goa, and Melaka.

After the initial occupation of Hong Kong by the British in 1842, with a deeper water harbor and much more potential for growth at the opposite side of the Pearl River Delta, Macau took a back seat as a leisure destination, directly tying both cities' futures together. With the constant growth and need to compete with the neighboring city, the Portuguese administration developed many projects of land reclamation and urbanism, many of them unfinished, which left new swathes of land available for people to build on. During Japanese occupation of large areas of East and Southeast Asia in the 1930s and 1940s, as well as the succeeding moments of unrest in those regions during the 1950s and 1960s, many would take refuge in both cities, leading to informal neighborhoods of fragile infrastructure.

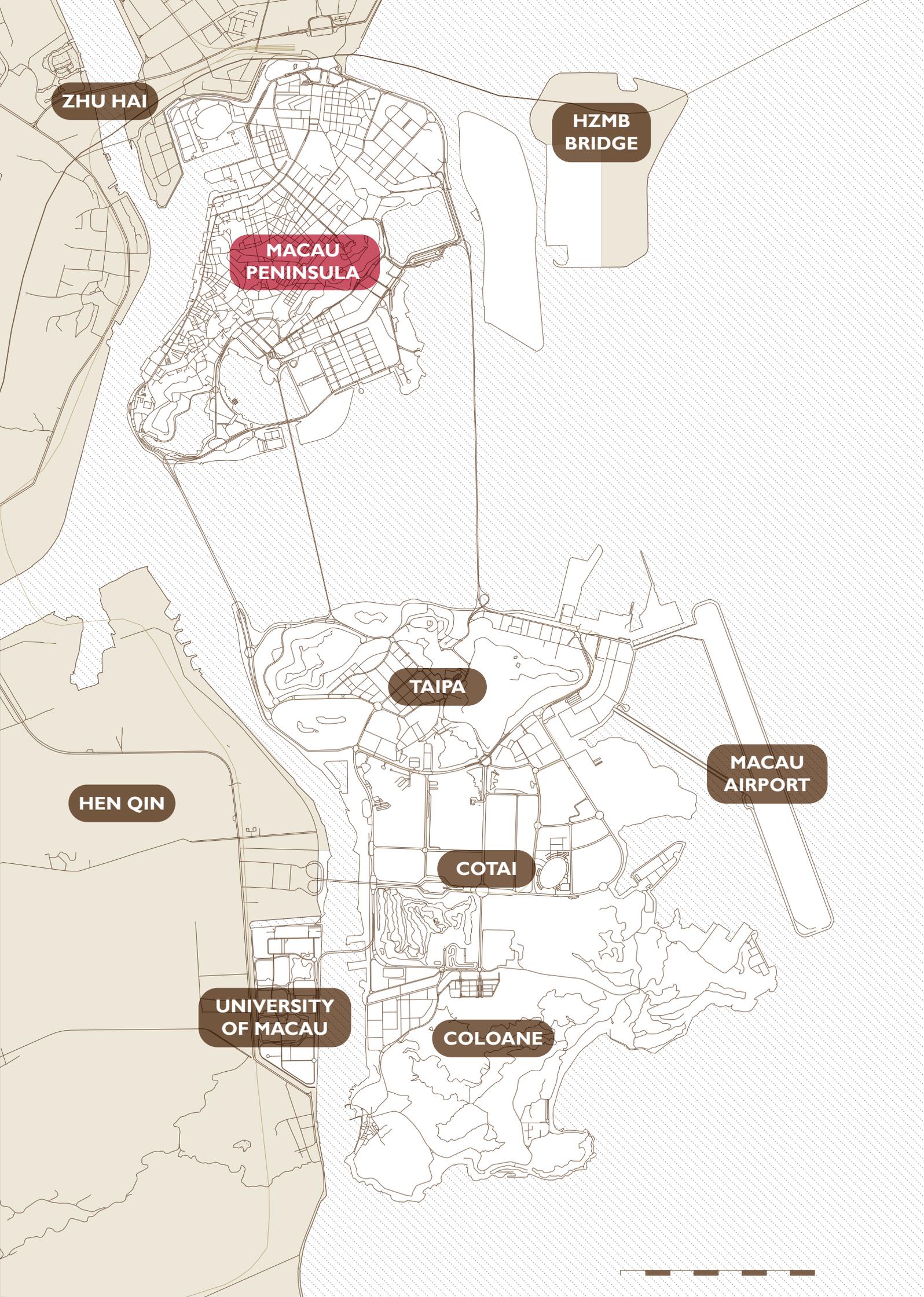
In the second half of the 20th century, collective housing and high rise structures became the norm in Macau and Hong Kong, as the densification of both foreign cities in the Pearl River Delta became beyond what informal neighborhoods could house. This led to public housing developments of such scale, that they are still one of the main residential solutions in Macau and Hong Kong, in order to deal with the small amount of land and constant population growth.

Macau's first example of formally designed mass housing blocks were made in the 1960s, directly inspired by the examples of the previous decade made by the Hong Kong Housing Authority. The Resettlement Housing Block (RHB), by Natália Gomes and Manuel Vicente, had the most people to accommodate, least funding and smallest footprint, but it encapsulates many of the strategies still in practice in Macau's public housing.





[Fig. 2 – Composite of maps localizing the Pearl River Delta, its major cities and Macau’s territory]



ZHU HAI

MACAU
PENINSULA

HZMB
BRIDGE

TAIPA

HEN QIN

MACAU
AIRPORT

COTAI

UNIVERSITY
OF MACAU

COLOANE



0.2 REASONING AND METHODOLOGY

0.2.1 Personal Connection

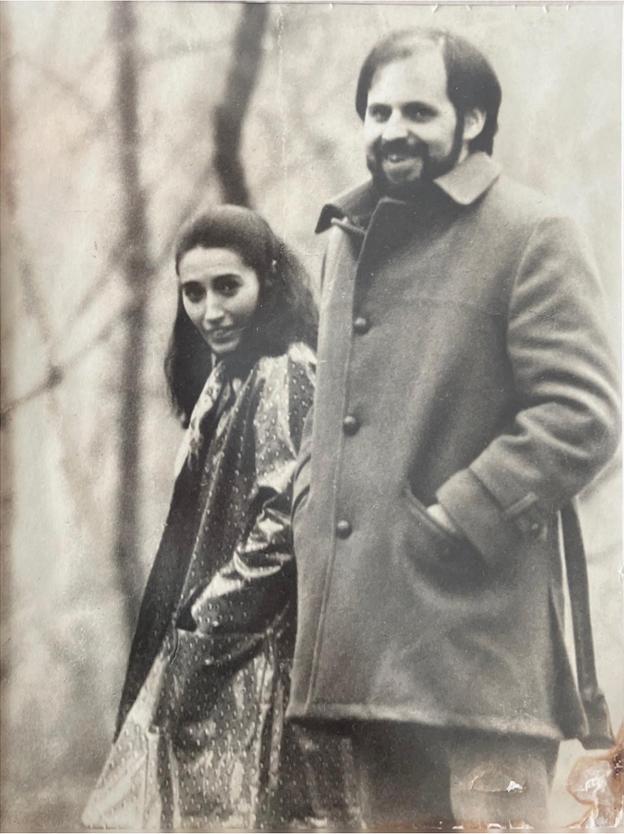
I was drawn to this subject as I bring a specific perspective to these topics. I am Portuguese, and I moved to Macau at a young age. I completed my bachelor's degree in Architectural Studies at the University of Hong Kong, which helped me develop an analytical and critical sense of investigation. My education at Politecnico di Torino reinforced the idea of architecture conservation, specifically restoration of modern movement examples.

Macau and Architecture have been a part of me since I can remember. Manuel Vicente, my grandfather, was a prominent architect in the Portuguese context, and is one of the main figures when discussing architecture in Macau. In his initial travels and career opportunities to Goa, Macau and Philadelphia, he was always accompanied by his wife at the time, my grandmother, Maria Natália Gomes, who he met during their initial higher education degree in Lisbon, at Escola Superior de Belas Artes de Lisboa (ESBAL). Despite separating in 1975, they continued to work together throughout their professional life.

While being in an atelier, they were compatible architects. Vicente was obsessed with forms, geometry and color, with a very strong character and ambition. Gomes' work is prevalent in its careful design and constant consideration to the user. "He made the dramatic design strokes, she made it humane" (Vicente, 2024). Due to the usual underestimation of women in architecture, especially in couples, the contributions by Gomes are often untold in academic papers about Vicente's work, with Gomes' work being often mis-accredited to him.

A lot of the work Maria Natália Gomes has done was directly connected to the government; in Macau and Maputo before the Portuguese Democratic Revolution of 1974, and assisting with the launch of the Cultural Institute of Macau in the 1980s, which began the preservation efforts that led to the city being awarded UNESCO heritage site status. She worked in several architectural offices, like Chorão Ramalho in Lisbon and Madeira, and Louis Kahn in Philadelphia, being a contributor of the team that built the renowned Venice model for the Palazzo dei Congressi in 1968-1972.

The idea of this thesis came from visiting the site of the Resettlement Housing Block with Maria Natália Gomes, and listening to her recollection of their first built project. Once I started my work, I learned she worked on this project before she had officially become an architect, and how she used this project as her final examination to graduate. As I was going to be using this project as my thesis subject as well, it felt fitting to continue on this path as a tribute to her.



[Fig. 3 – Maria Natália Gomes and Manuel Vicente in the late 1960s, Pennsylvania. Picture from Lourenço Vicente's personal library]



[Fig. 4 – Maria Natália Gomes and author on site of the Resettlement Housing Block, 2024. Picture by Filomena Vicente]



[Fig. 5 – Maria Natália Gomes and Manuel Vicente working in the Urbanism Department, early 1960s. Taken from *Hong Kong Far East Builder*, issue of May 1965]



[Fig. 6 – Maria Natália Gomes on site of the Resettlement Housing Block, 2023. Picture by author]

0.2.1 Methodology & Research Outline

Macau is a small city with a unique history and complex characteristics that most are unaware of. This thesis is a way to bring knowledge of this city, and aid in understanding how it grew to be the densest populated region of the world.

Public housing has different levels in the different contexts I will study, usually divided by economic classes. As each territory mentioned has different scales of housing development, and with varied economic situations, this thesis will use “Public Housing” as an umbrella term for any housing estates funded (at least partially) by the government, with buildings of formal design by state employed individuals. Overall, this includes social; economic; resettlement; and state employee housing.

As I began my research surrounding public housing in the 1960s in Macau, Portugal and Hong Kong, I found the article PhD student Niccolò Arnaldo Galliano wrote about Manuel Vicente and Resettlement Housing, which helped direct my focus. Further articles by Ana Vaz Milheiro, Ana Tostões, Rui Leão, and the Heritage Society of Macau, made me realize that while mentioned, plenty is left to be documented on what happened in Macau between the tumultuous time of 1-2-3 incident in 1966 and the Portuguese Democratic Revolution in 1974.

I traveled to Porto to find original drawings of the building in the Archives of Faculty of Architecture at Universidade do Porto, within the Manuel Vicente Fund. In Lisbon, I began the long search of the urban history of the North of Macau Peninsula at the Macau Scientific and Cultural Center (CCCM), and I went through the personal libraries of the original architects of the Resettlement Housing Block. Whilst in Lisbon, I had an interview with Maria Natália Gomes, along with Ana Tostões and Niccolò Arnaldo Galliano, where we learned first-hand the design intentions and what was done by each architect.

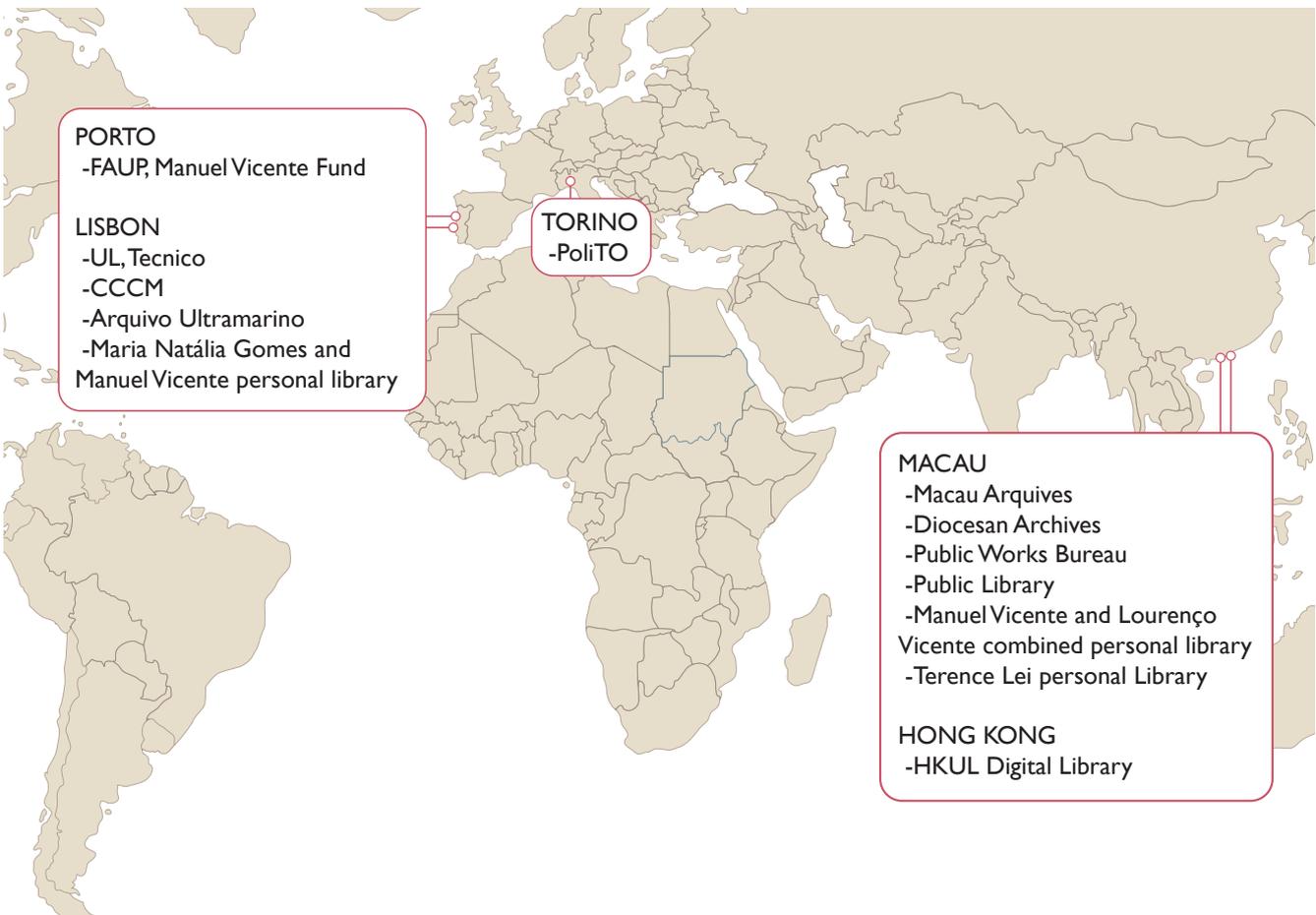
Besides the previous authors mentioned, articles about this time in Macau are few and far between, ranging mostly from Chinese and Portuguese rather than English, and little being available online to review from Italy. In late 2024, I went to Macau to continue my research of primary sources at the Historical Archives of Macau, as well as corresponding with the local Housing Department (IAS) and Public Works Bureau (DSSCU), the latter delivering original drawings of some of the buildings within my research. As I was missing the exact timing of construction of the public housing developments of the city, I was able to access to the Diocesan Archive of Macau in early 2025, where I went through monthly bulletins to have a better understanding of the timeline of events, as well as discovering the exact contributors to the housing projects.

As my degree is in Architecture for Heritage, I grew passionate in neglected modern heritage examples, and reviewed successful restoration projects and adaptive reuse examples of buildings of this movement. Housing is one of the more difficult examples of preservation in the context of the Pearl River Delta, as the densification of the whole region leads to increasing demand for high rise housing and the land to develop it.

Given this, my thesis argues for the conservation of the Resettlement Housing Block as a paradigm of Modern Public Housing in Macau. As a part of this work, I present potential strategies for the conservation of the Resettlement Housing Block which can lead to a project which prioritizes the current residents.



[Fig. 7 – Maria Natália Gomes and author during interview with Niccolò Arnaldo Galliano and Ana Tostões, July 2024. Picture by Niccolò Arnaldo Galliano]



[Fig. 8 – Archival material accessed during my research]

0.3 Dissertation Structure

As the administration of Macau during the period of my study was under Portugal, I provide an initial chapter dedicated to understanding the themes of this thesis within Portuguese adjacent contexts. These included how architecture developed in the postwar period, and the government led projects of urbanization and housing done in the 1960s in Portugal and colonial territories, as well as understanding how heritage was treated before the Democratic Revolution of 1974, when Portugal released most of its colonies from its control.

Following this is a chapter on Macau's history and development, with a focus on the 20th century, understanding its peaks of population as consequences of the political environment of East and Southeast Asia. Then, showcasing the urbanization of Macau Peninsula, and the reliance on land reclamation, which was directly connected to the aims of the Portuguese colonial government of the time. Later, due to the exponential growth of the city, a shift is identified in the view of Macau's architectural heritage. Whilst this led to the current identity of the city as a UNESCO Heritage Site, and prestige associated with this, modern architecture remains at the fringes of heritage considerations, which this thesis directly challenges.

As this thesis focuses on public housing, which in this context includes collective housing estates created and partially funded by the administration of the city, a view of its history in the connected contexts of Macau and Hong Kong is done, creating timeline comparison between both cities.

Finally, the object of the thesis is introduced in the Project chapter, the Resettlement Housing Block, as the original design, time of construction and current condition inform the design I later developed. Within its context in the city, it becomes a rare example of modernist architecture that is endangered, a key artifact of the history and life of the city which should be protected.



[Fig. 9 – Maria Natália Gomes and Filomena Vicente on site of the Resettlement Housing Block, 2024. Picture by author.]

1 MODERN MOVEMENT IN PORTUGUESE-ADJACENT CONTEXTS

In the European post Second World War context, the number of displaced people caused by the conflict played a role in the large development of housing estates. These estates, designed for different socioeconomic classes, were large-scale modernist projects in areas freed up by the decimation of the war or in the peripheries of growing urban centers. While the Iberian countries were not directly involved in the war, the needs of their citizens pushed for further housing development, which led to an opening of the two far-right regimes to wider international movements, including that of post-war modernist architecture.

While the timeframe of study of this thesis corresponds with post-colonial efforts, Portugal had a different perspective compared to its European counterparts, as it was still in a dictatorship after the war, and while more open than in previous years, colonial power was still prevalent in its public works across the colonies.

To understand the subjects of the later chapters, an introduction to the Portuguese architecture movement and the political intentions behind it is necessary. Beginning with the history of collective housing in the 20th century, and how the Modern Movement entered the country in the post-war period, influencing many urbanism plans in the country and in the then colonial territories, including many housing developments.

[Fig. 10 – Pancho Guedes Prometheus Buildings in Maputo, Mozambique, where Maria Natália Gomes lived between 1971-73. From Houses of Maputo blog, August 2016, <https://housesofmaputo.blogspot.com/2016/08/pancho-guedes-lojas-em-vez-dos-pilotis.html>]



1.1 History of Collective Housing in Portugal

In 1910, Portugal became a republic, and the housing ideologies grew within this change. As working class neighborhoods began to appear, and migration to the cities rose, laws to protect rent increases were put in place (Teixeira, 1992). Most collective housing estates had direct connection to industrial contexts, but the need for hygiene infrastructure led to the development of Economic Houses (Casa Economicas), through legislation in 1918 by the Sidonio Pais government (Ramos et al., 2020).

With the end of the First Republic in 1926, following a military coup, a few social housing neighborhoods were completed from previous plans. The authoritarian New State (Estado Novo) was formally established in 1933, and with it came new investments on government led housing projects. This fascist regime held at its core an ideology based on "God, Family, Nation", and prioritized the middle-class as their main supporting group. Previous laws that protected tenants were dismissed, giving back power to the landlords, and most social relief was underfunded and forgotten (Teixeira, 1992).

Public housing at this time was focused on government workers and private developments supported by the government, in what was called the Economic Housing Scheme. As one of the main tenets of the government was 'Family', the goal was to create homes for the middle class in the peripheries of the main cities, with neighborhoods of single or two storey homes with gardens, thus bringing the traditional rural family dynamic to the city (Ramos et al., 2020).

Since the government was against working class communal blocks, informal neighborhoods grew around the cities as well, which led to resettlement schemes, making low cost material dwellings that could be dismantled for more permanent solutions. There was also the attempt to encourage private investment in social housing estates, but due to the price of land and market interests, it was never fully successful (Ferreira, 2015).

1.2 First Architecture Congress and the Modern Era of Portuguese Architecture and Urbanism

While remaining a neutral country during the Second World War, developments done in Portugal after 1948 end up resembling European post-war housing. This year is when the First Architecture Congress (1º Congresso de Arquitectura) took place in Lisbon, in which discussions of the Modern Movement finally reached the closed-off country (Rodrigues, 2014). The congress had a focus on the basis of Modernism and its European origins, with a translation and publishing of the Athens Charter in the magazine *Arquitectura*, opening the dialogue beyond the attendees of the congress itself. Another main topic of discussion was Brazilian architecture and the urban ventures happening in the larger country, providing an introduction to Lucio Costa and Oscar Niemeyer's Tropical Modernism (Vicente, 1976).

Suddenly, Portuguese architects that had not studied in foreign universities had access to the modernist ideals in urbanism. With growing urban density of both Lisbon and Porto requiring more housing developments to be constructed, the introduction of Legislation for Horizontal Property allowed for multi-storey buildings to replace the extensive informal neighborhoods surrounding both cities (Pinto, 2015). Thus began the suburban hubs in the peripheries of the major cities in Portugal (Teixeira, 1992), as well as in colonial territories (Milheiro et al., 2015).

However, as the government kept prioritizing the middle-class Portuguese population according to traditional values, the estates being built had features that went against the modernist ideology. As Manuel Vicente puts it, "in the global context of a great economic recession, the government was forced to enact public works policies, in which nationalistic construction and national reconstruction were closely related" (Vicente, 1976).

What could have looked like a social housing estate outside of Portugal, had apartment layouts that served richer households, most evident through a separate service entrance and quarters for an in-house maid (Ramos et al., 2020).

This was also the case for estates designed through the Overseas Department in Portuguese territories. By Maria Natália Gomes' account, the building she lived in Maputo Mozambique, then Lourenço Marques, had an incredibly modern aesthetic as the work of Pancho Guedes [Fig.]. However, it assumed that the residents would be middle-class and upper, as it included servant quarters on the highest level of the building, essentially segregating the building (Gomes, 2024).

Many of the projects found in the first wave of Modern Housing in Macau in the 1960s have the same pattern, later discussed in chapter 3. The Rainha Dona Leonor Housing Block by José Lei, a Macanese architect that studied in Hong Kong, is clearly inspired by Marseille Unité d'Habitation of 1952 by Le Corbusier, using a duplex typology and clear understanding of climate requirements with open ventilation throughout its circulation. Even here however, due to the intended residents being Portuguese Doctors and higher level employees of the Holy House of Mercy, a quarter for the in-house maid smaller than the kitchen is included in the layout.



[Fig. 11 – Bloco Sol Habitação Coletiva in Angola, Arquivo Histórico Ultramarino]



[Fig. 12 – Rainha Dona Leonor Housing Block by José Lei, 2023. Picture by author]

1.3 Portugal & its Colonies: the Overseas Urbanism Department

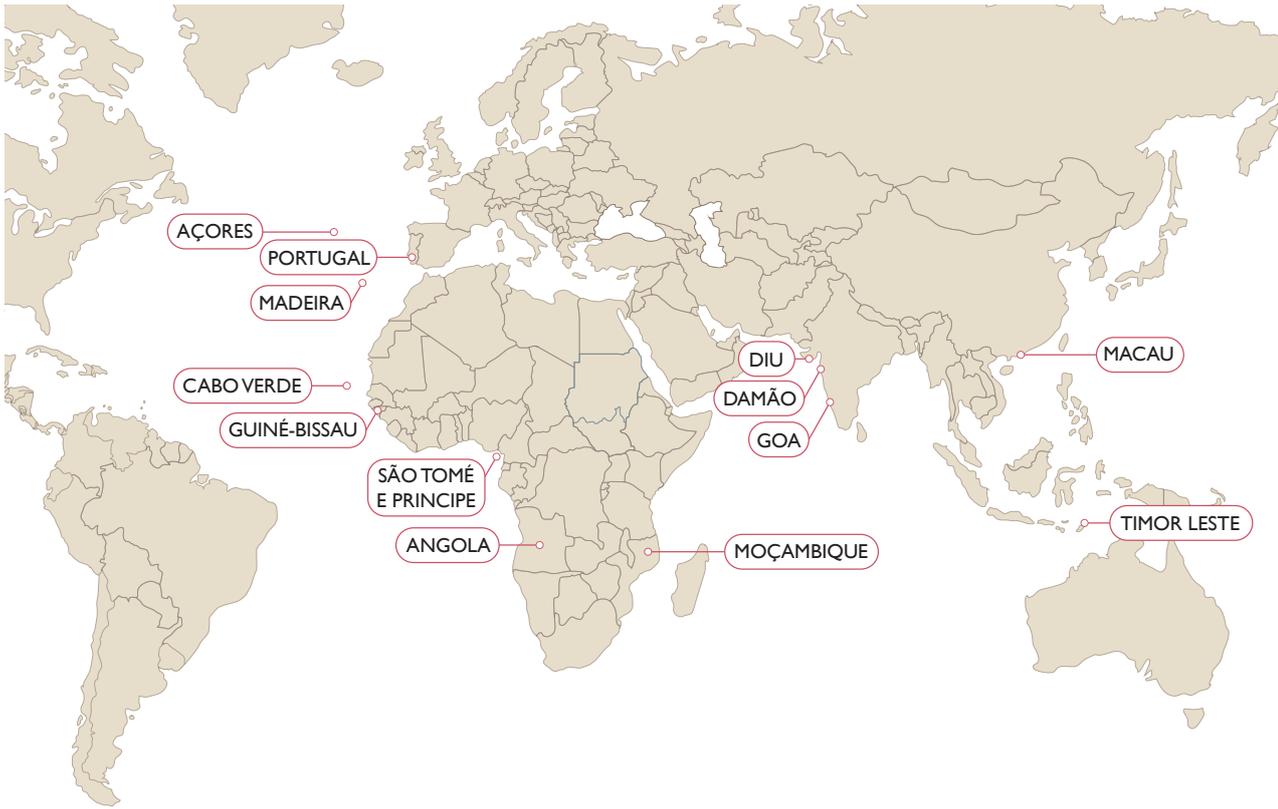
Modern architecture in a colonial context has many facets. Before modernism, colonial architecture mostly refers to buildings of a western style of the colonial power adapted to the climate of its location, taking features of vernacular architecture at times to further this connection to the colonial city. Colonial architecture is usually still found in administrative buildings, such as embassies and courthouses.

In a housing context, it includes large scale estates for government officials, repeated houses for other administration workers, and tenement housing for larger numbers of the lower class.

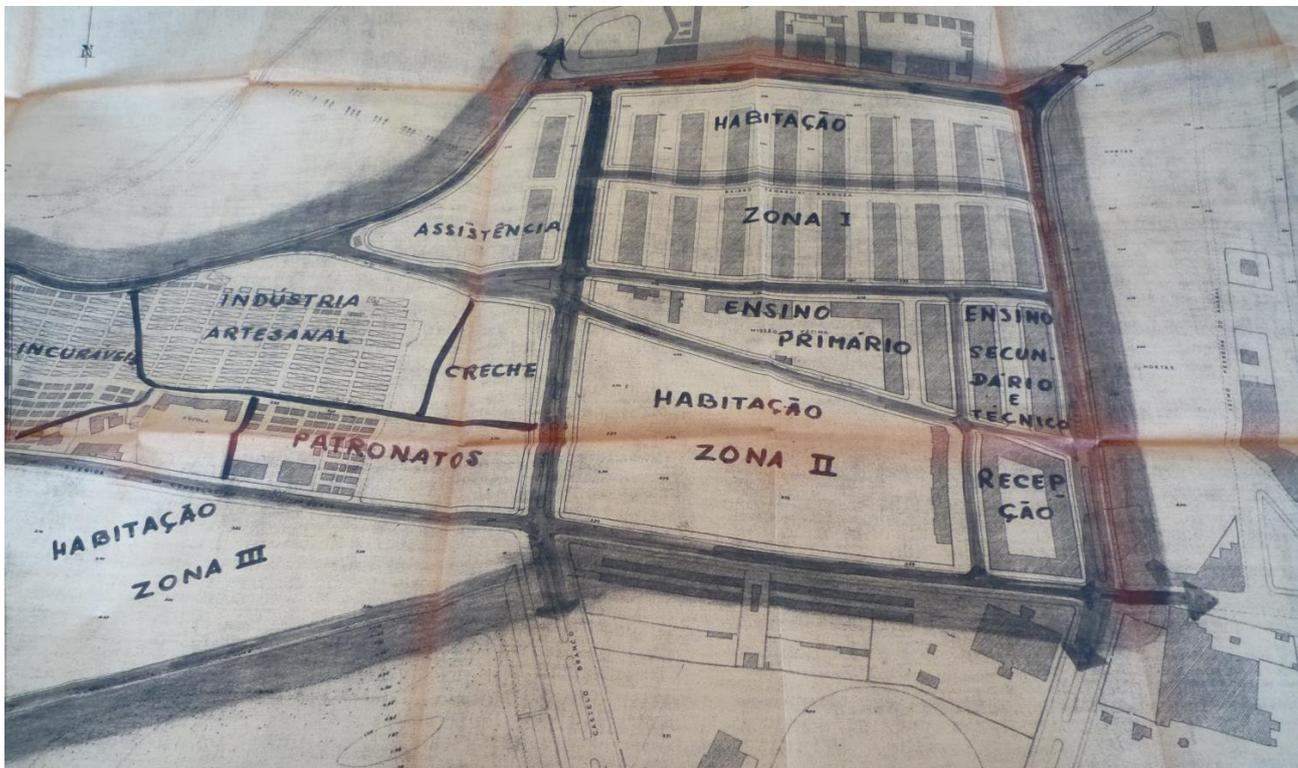
Until the Democratic Revolution of 1974, most Portuguese territories were under strict ideologies, as the dictatorship held on to its administrative control. As modern architecture and an interest in urbanization projects worldwide had its rise in Portugal, there was a push towards developments in the major cities across the different countries under Portuguese control, in order to reinforce colonial power (Milheiro, 2012).

From Lisbon, Portugal, the Public Works Department for the Overseas Ministry (Direcção dos Serviços de Obras Públicas para o Ministério do Ultramar) would develop projects for the main colonial cities, sending small teams to each region for construction and further development. Most of the projects included administrative and institutional buildings, as well as large urban planning for new areas of the city (Proença, 2023).

When it came to residential projects, there was a disparity depending on the country, or even continent, it was being developed for. In Luanda, Angola, there was peripheral growth to the city, fueled by a growing urban population and allowed for by land availability. Much like in Lisbon, there was a focus on middle-class economic housing for white European residents (Brites, 2024). Macau also had large population growth, mostly from immigration, but was much more limited in land availability, and housing projects there had a bigger range of economic levels. Most mass-housing projects were built to rehouse residents that lived in informal housing neighborhoods in large swats of land from previous unbuilt urban planning projects, which had become the outskirts of the city (Milheiro et al., 2015).



[Fig. 13 – Portuguese Territories in 1960]



[Fig. 14 – Plan for Bairro da Ilha Verde, 1962. Source AHU-Arquivo Histórico Ultramarino, from Technoscience of Slum Intervention by Eduardo Ascensão, <https://www.technoscienceslumintervention.org/interventions-vi-sites-services>]

2 MACAU - PORTO DE ABRIGO

Macau is a unique location with a long history of complexity and mixing of cultures, located in the Pearl River Delta in the South of China.

In the 16th century, it was specifically chosen by the Ming Dynasty to lease to the Portuguese, becoming a trading settlement open to foreigners, connected to the larger city of Guangzhou. This led to the sudden growth of the territory, which was previously composed of small fishing communities, into a diverse and bustling location for the time.

The peninsula of Macau and its geography have always provided a safe harbor - 'porto de abrigo' in Portuguese, literally "shelter port" - to the local fishermen as the region is affected by tropical storms and even typhoons during the summer months, also known as the monsoon season. In the local language of Cantonese, Macau is called Ou Mun (澳門), meaning 'port gate', adding to this relationship of a doorway into the Pearl River Delta.

However, since its beginning and throughout the centuries, Macau also became a place where many would find safe refuge. Unrest in nearby regions would lead to migration into the small territory, which often provided the hope of help necessary to lead a better life or to simply survive.

Even between administrative changes and constant population growth, Macau remains a thriving city, mainly known for its leisure and touristic identity.

In this chapter, a timeline of events and changes in Macau is presented, divided into related topics, narrowing down to the history of public housing, and leading to an understanding of the city's current relationship with architectural heritage.



德記



2.1 Brief Historical Context & Population Growth

With its relationship between the Pearl River Delta and the South China Sea, 16th-century Ou Mun was composed of a few fishing villages. At that time, nearby Guangzhou was one of the major ports within the South China Sea trading routes. Jorge Álvares, a Portuguese explorer, first arrived at the Pearl River Delta in 1513, making landfall somewhere within the current territory of Hong Kong, on its western islands. There, the harbor was deeper and more desirable for overseas trading (Teixeira, 1997).

Soon after, Portuguese trading posts appeared throughout the area, which would routinely face expulsion by Chinese authorities. After 40 years of this violent interaction, the efforts of Leonel de Sousa, a Portuguese navigator and diplomat, led to the agreement with Chinese officials to allow for a Portuguese settlement in the Macau Peninsula. This site was not as easily accessible to Portuguese warships (Naus), minimizing the potential threat of the cannon-fire they were capable of. Furthermore, part of the agreement included the commitment of the Portuguese to defend the Chinese coastline from pirates that operated in the area, something the Portuguese were known for (Teixeira, 1997).

The Portuguese city grew nearby the existing local population at the south of the peninsula. Soon after, however, a Christian section was formally established by the construction of walls and fortresses. All these fortresses, primarily operated by Jesuits, were equipped with cannon artillery as the city was under threat of pirates and other foreign naval forces. However, throughout history, none of these cannons were aimed at Mainland China, highlighting a relationship which, although at times tense, was mostly peaceful for the duration of Portuguese presence in the region (Teixeira, 1997).

Through the centuries, Macau became one of the main trading settlements of the region, growing steadily with its commercial importance, and was always a place of refuge for many migrants, with charity organizations constantly stepping up and offering help to those in need. In 1569, Bishop Belchior Carneiro Leitão established the Holy House of Mercy, establishing from the beginning a strong sense of charity in the city. It is also rumored that he contributed to the creation of the Loyal Senate, the local assembly which brought together Portuguese officials and the elders of local villages remaining in Macau (Teixeira, 1997).

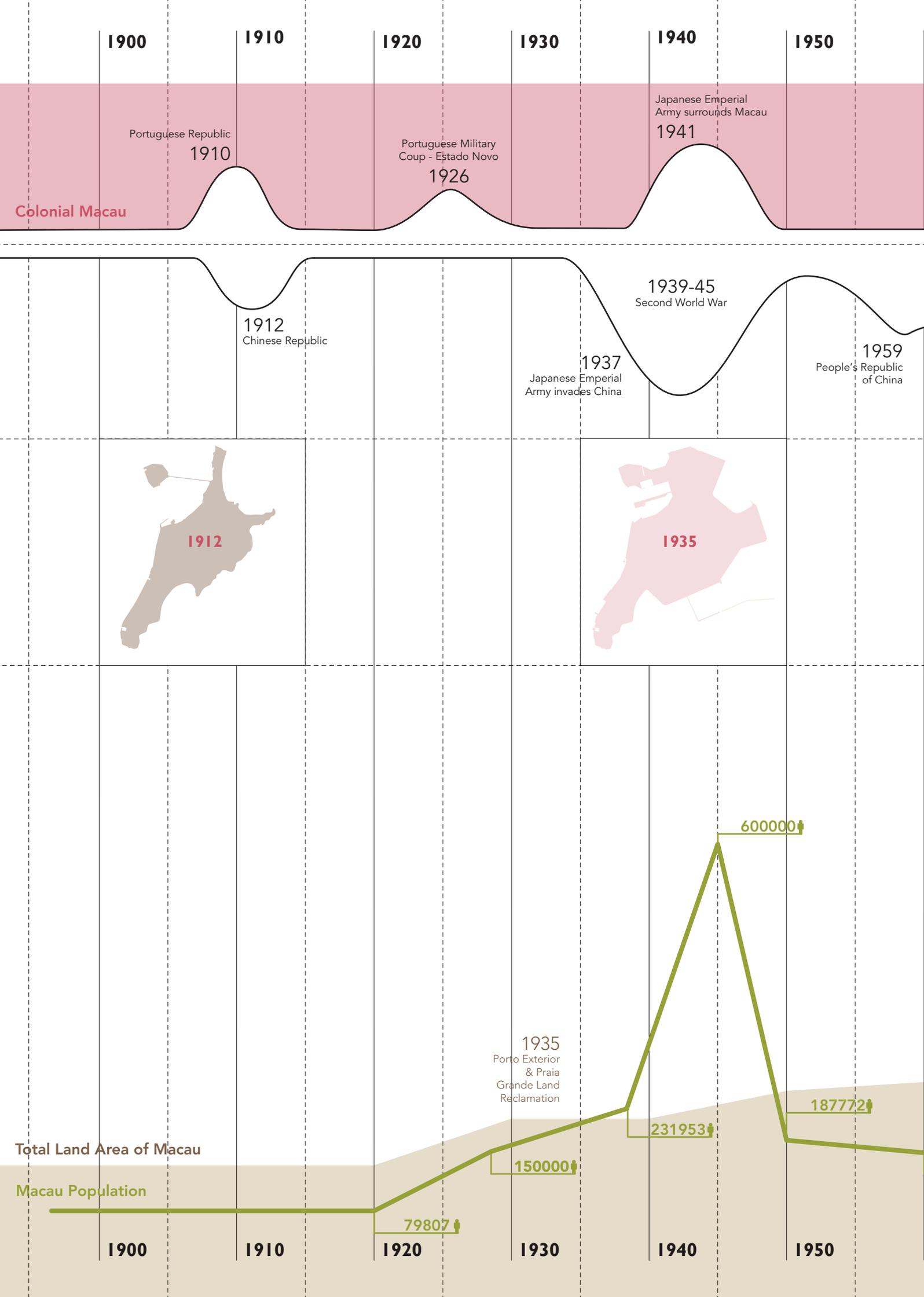
As more European powers began to compete for the trading routes of the Indian Ocean and beyond, Macau soon lost its singularity as a foreign administration within the Pearl River Delta. At the end of the First Opium War in 1842, China surrendered Hong Kong to the British Empire. This marked the beginning of the Unequal Treaties, signaling a trend of European coercive power over the Qing Dynasty, which later also resulted in the status of Macau changing from rented territory into a formalized colony (Teixeira, 1997).

The initial growth of British Hong Kong was facilitated by Macau businesses and citizens, as many moved to the city, working as translators for the government.^[1] Due to the more desirable port conditions of Victoria Bay in Hong Kong, Macau took a backseat in the trading world, and slowly became a leisure destination to its sister city, especially after the legalization of gambling in 1847 (Silva, 1995).

[1] The initial growth of Victoria, presently Central in the northern coast of Hong Kong Island, was largely inspired by Macau. The first urbanistic intervention of the city was named Praya, based on the Praia Grande of Macau, placing the main colonial powers at the sea front, imposing the foreign administration into the identity of the city.



[Fig. 16 – Main areas of Macau Peninsula]



1900

1910

1920

1930

1940

1950

Portuguese Republic
1910

Portuguese Military
Coup - Estado Novo
1926

Japanese Emperial
Army surrounds Macau
1941

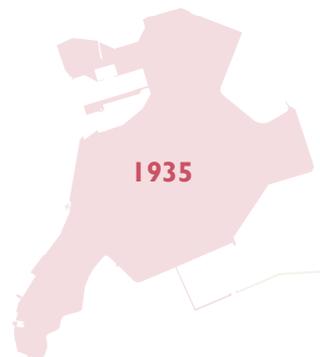
Colonial Macau

1912
Chinese Republic

1937
Japanese Emperial
Army invades China

1939-45
Second World War

1959
People's Republic
of China



Total Land Area of Macau

Macau Population

1900

1910

1920

1930

1940

1950

79807

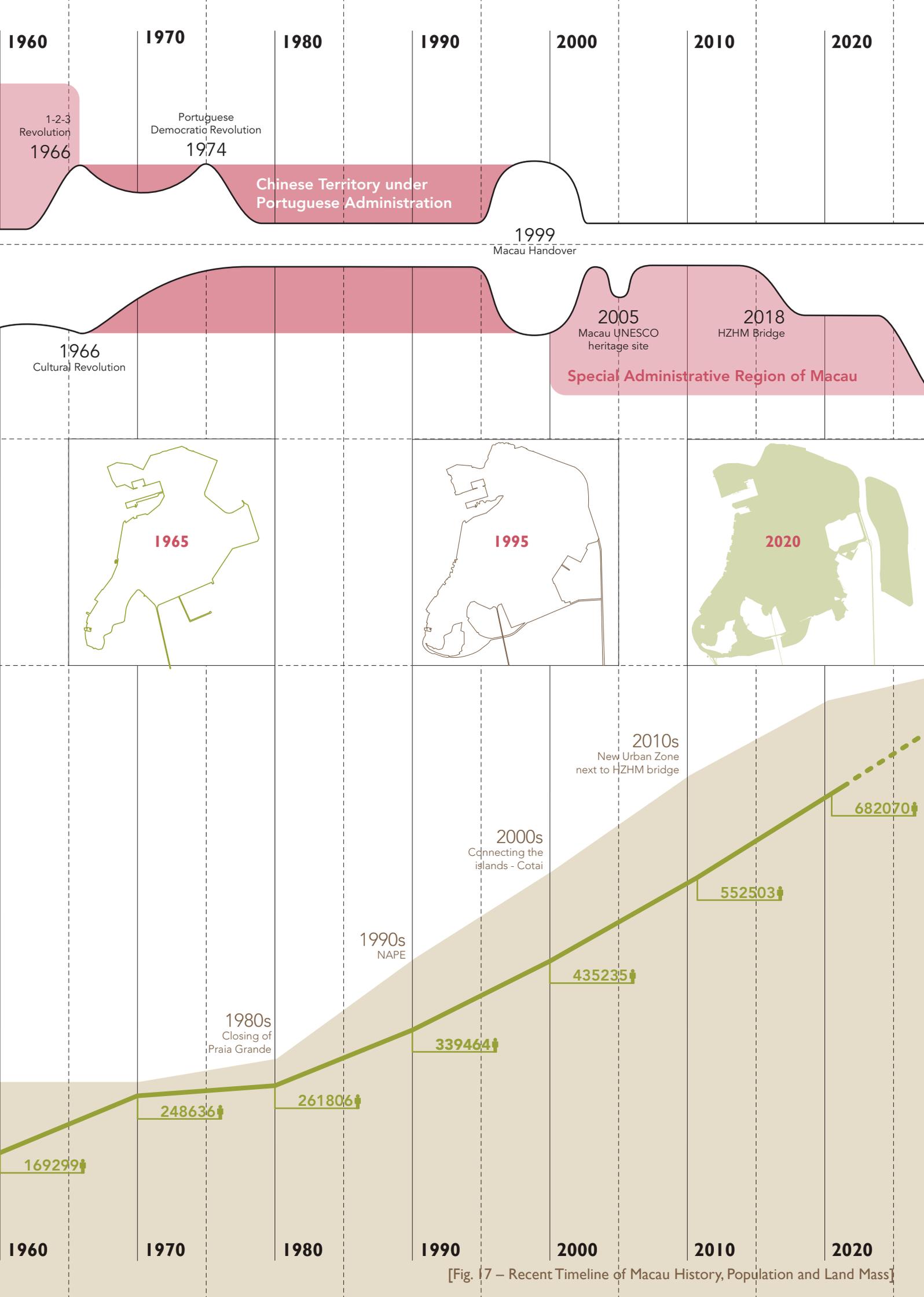
150000

231953

600000

187772

1935
Porto Exterior
& Praia
Grande Land
Reclamation



In the early 20th century, as the Chinese Republic was established, more people moved to the peninsula for better opportunities, steadily increasing Macau's population, albeit at a lower rate than to Hong Kong. Furthermore, prior to and during the Second World War, as the Imperial Japanese Army invaded China, Hong Kong and other nearby islands, Macau became the only neutral space of the region, safeguarding millions of immigrants during this time (Amaro, 1998). However, while maintaining its neutral status, Macau's borders and trade routes were constantly under threat from the Japanese navy, which blocked resources from reaching the small city, leading the overcrowded population to starve, both local and displaced (Teixeira, 1997).

After the war, many of the migrants returned to their home, decreasing the population of the city. However, the outskirts of the peninsula had become overrun by informal neighborhoods, housing most of the low-economic level residents of the city. In contrast, central Macau continued its efforts to become a leisure destination, establishing high end hotels and casinos, and introducing the Macau Grand Prix for further international renown (Silva, 1995).

Macau ceased to be considered a colony in 1966, with the 1-2-3 Revolution. Local residents fought against the oppressive Portuguese government and law enforcement, emboldened in their actions by the Communist Party in Mainland China. After 2 months of tension in the city, a treaty was signed in early 1967, which required Macau to not allow political asylum to Kuomintang nationalists, the rival political party to what would later become the Popular Republic of China. In this declaration, Macau was recognized as a Chinese territory under Portuguese administration, as was first agreed in the 16th century (Teixeira, 1997).

As Portugal underwent its Democratic Revolution in 1974, the new democracy tried to return Macau to China, which was delayed, as China appealed for a long-term plan for the transfer of the territory. In 1989, the handover was scheduled for 20th December of 1999. The Portuguese government then began to restructure its administrative and political branches so that local people had more power in the territory, as well as demilitarizing the city.

After 1974, and with the impact of the Chinese Economic Reform in 1978, Macau grew exponentially, following the trend of high-rise construction from Hong Kong. The Handover of Macau back to China in 1999 made it the Special Administrative Region of Macau, two years after Hong Kong.^[2]

While the Portuguese population decreased, the city continued to grow into the densest territory in the world, with 22,000 inhabitants per square kilometer. With plans of reintegration into Mainland China by 2049, Macau has become part of the plan of the Greater Bay Area, with neighbor city of Zhu Hai growing alongside it, now both connected to Hong Kong by bridge since 2018.

[2] In the decades before the official handover of Hong Kong and Macau, both foreign administrations invested in the city to create better conditions for the growing populations, a lot of them being urbanization plans and revitalizing certain neighborhoods with poor quality of life, such as the Kowloon Walled City in Hong Kong in the early 1990s, and the urbanization/public housing efforts done in Macau later mentioned in the thesis.



[Fig. 18 – Piled Houses, 1930-50. Picture by Lei lok-Tin, from Macau Archives]



[Fig. 19 – Inauguration Ceremony of the Nobre de Carvalho Bridge. Photography by Lei Chiu Vang from Terence Lei's personal library]

2.2 Architecture & Heritage

With such a rich and unique history of mixed cultures, Macau has gathered architectural artifacts that have become an incentive to its touristic identity, currently having its historical center as a protected UNESCO Heritage Site since 2005.

During the New State dictatorship, the idea of Architectural Heritage to the Portuguese administration was colonial in nature; the preservation of the colonizers' history taking precedence, prioritizing Military, Religious and Colonial architecture, all to reinforce the ideology of the oppressive government (Zadonai, 2025).

After the 1974 Democratic Revolution in Portugal, Macau remained the only overseas territory under Portuguese administration, as all other former colonies were liberated, but Macau had a different arrangement that had been set after the 1-2-3 Revolution, that was to be decided at a later date.

Around the time the Handover was decided to be in 1999, Portuguese architects invested in the growing metropolis across the world. The faraway city of Macau that would no longer be Portuguese in the coming decade became of high interest to architectural and heritage enthusiasts, as the growth of the city was leading to the demolition of older low rise buildings to make space for high rise typologies.

In the 1980s, witnessing the slow demolition of the buildings of architectural and historical interest led to the creation of the Macau Cultural Institute. Two people of note are Francisco Figueira and Carlos Marreiros, who led the institute at different moments in Macau's history, beginning proper preservation practices of the historical sites. While some of the buildings that are protected are still within colonial constructions [Fig.], projects prioritizing the preservation of the local lifestyle in Rua Almeida Ribeiro with Tong Lao examples [Fig.], as well as beginning the processes to acquire private estates such as the Mandarin's House [Fig.], showcased the institute's stance of protecting all valuable cultural heritage artifacts, and not just ones of Portuguese origins.



- | | | |
|--|---|--|
|  Protected Zones |  Grouped Areas of Heritage Value |  Informally Protected Area |
|  Monuments |  Buildings of Architectural Interest | |



[Fig. 21 – Historical Archive before Restoration. Macau Gloria, Gulbenkian Digital Archives.]



[Fig. 22 – Historical Archives after Restoration. Cultural Institute]



[Fig. 23 – Mandarin House before Restoration. Macau Magazine.]



After

[Fig. 24 – Mandarin House after Restoration. Macau Magazine.]

2.3 Urbanization of the Macau Peninsula

Before the Portuguese, 3 fishing villages could be found within the Macau Peninsula.^[3] With the arrival of the foreign settlers in 1557, a central bazaar grew next to the new 'christian' settlements, fortresses, convents, creating a singular city (Teixeira, 1997).

Macau in the 21st century is the territory with the highest population density of the world, with 20,300 inhabitants per square kilometer in the current 30.4 square kilometers of land area (Statistics and Census Service of Macau SAR, 2025). The city still continues to grow through its ideal hydrological conditions for land reclamations, a process that started as soon as it became a growing locale 400 years ago.

2.3.1 Geographical conditions & Natural Land Reclamation

At the end of the Pearl River Delta, Macau is bathed by the silt of the expansive river, and its coast often has long expanses of beach of a swamp like quality, making the geographic and hydrological conditions of the area perfect for land reclamation efforts.

The earliest documented man-made land reclamation began within the early times of occupation by the Portuguese of the peninsula. With the idea to control the area of the Inner Harbor, they dumped sand across the canal from A-ma Temple, in the Zhu Hai coast. This led to an expansion of land in the bazaar area of the local population, a consequent silting derived from the tactical move described above, as the sand settled along the peninsula (Teixeira, 1997).

The growth of Portuguese Macau continued to slowly occupy more of the beaches and low sea-level areas, widening the center of the peninsula.

[3] The initial villages of Macau followed the usual Lingnan style settlements: between a water source and a mountain. The main evidence that exists today are the temples connected to each village, of both Buddhism and Taoism. Residential courtyards can be found as well, following the two storey style of the Guangdong region.

2.3.1 Competing with Hong Kong: Harbor Expansion

The first formal approach of fully-man-made land reclamation was in 1890, with the Ilha Verde (Green Island) Isthmus on northwest of the Macau peninsula, named after the governor of the time, Conselheiro Borja. This dramatic geographical change led to silt settling north of the isthmus, creating low but more permanent swats of land. The sand that settled there was however threatening the navigability of the Inner Harbor, which fishermen would use during the monsoon season for safe mooring (Chan, 2021).

This change of the geography, and the continuing competition with Hong Kong as a bigger trading port, led to land reclamation projects began to be drawn, in a way to expand the territory, while restoring the Inner Harbor to a deeper canal that allowed ships to and fro more easily.^[4]

Many of these projects were made from 1910s to 1930s, with enough work being done on the land reclamation side, but not much of the urban planning was completed. These areas at the north of Macau peninsula began to be occupied by new migrants of the city, with some industrial entrepreneurs taking advantage of the new outskirts of the city, creating factories next to these neighborhoods and employing its residents (Anuário de Macau, 1922-27)

During the Second World War, these areas were completely overtaken by the displaced people taking refuge in the peninsula, creating the informal neighborhoods previously mentioned that overtook both the Inner and Outer Harbor of Macau. After the war, the government decided to create proper infrastructure and sanitization to these rapidly densified areas, leading to the urbanization efforts by the Overseas Ministry in Portugal (Proença, 2023). These were completed to varying degrees, mainly following the road designs: in the northern part of the peninsula with the Ilha Verde Urbanization in the Inner Harbor, the area next to the hippodrome, now called Areia Preta (Black Sand) in the Outer Harbor; the southern side of the city had the initial reclamation of the Praia Grande, and the Zona de Aterros do Porte Exterior (ZAPE).

[4] Many drawings of the Macau Peninsula from 1900 to 1950 are a part of contest submissions and proposals for harbor expansions and connections. Many of these were incomplete, and the timing of construction is unclear. The books that best explain the reality of this cartographic discrepancy are the ones by Proença, 2023 and Chan, 2021.



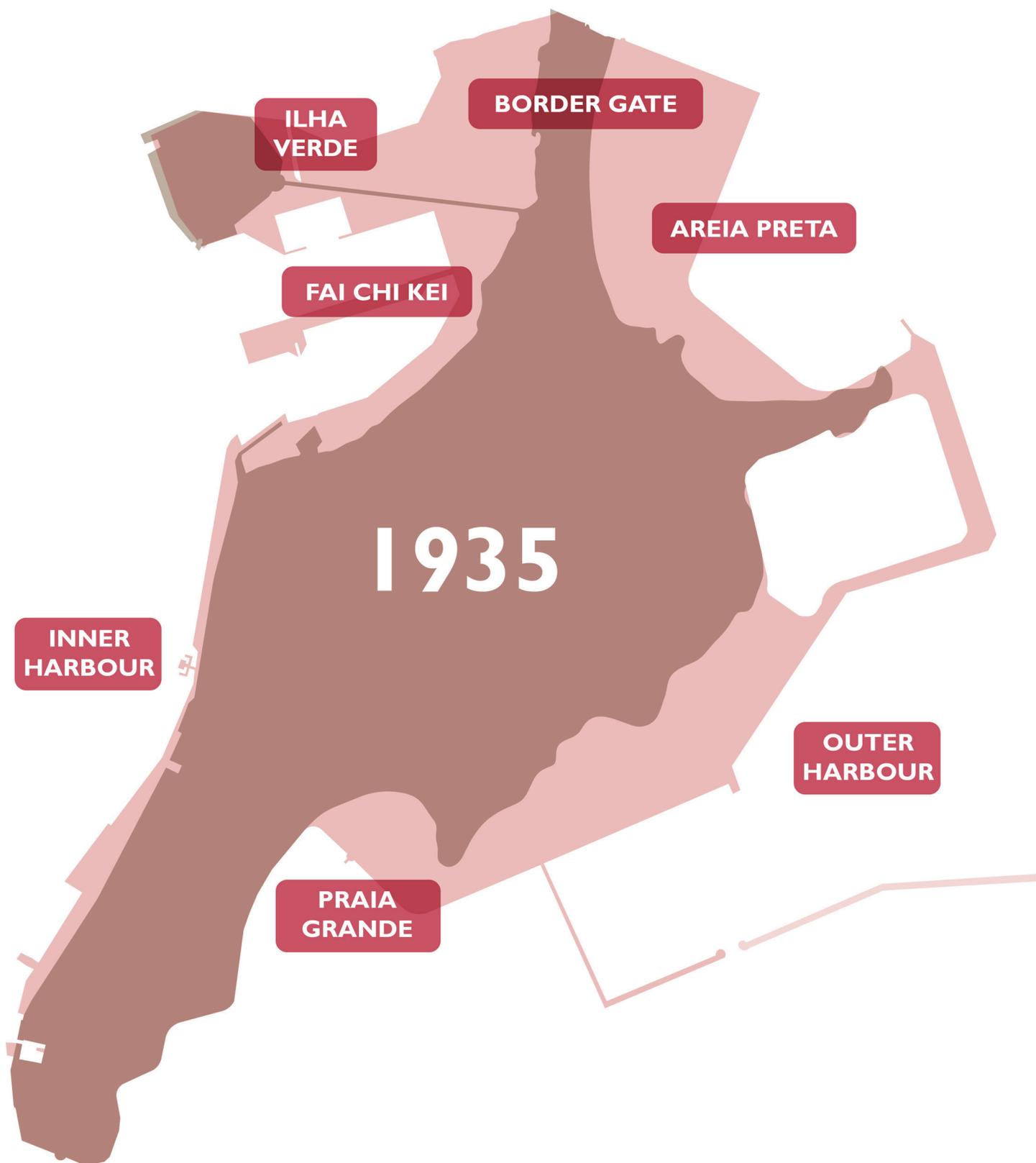
[Fig. 26 – Ilha Verde Isthmus. Arquivo Histórico Ultramarino]



[Fig. 27 – Pantane and 28 de Maio neighborhood, 1930-50. Archives of Macau]



[Fig. 28 – Map of Macau 1912]



[Fig. 30 – Map of Macau 1935]



2.3.3 Overseas Public Works Department Urbanization

Macau in the early 1960s was still essentially a colony, as one of the furthest and smallest territories under Portuguese administration. In 1962, with the appointment of the new governor António Lopes dos Santos, came a strong intention of turning Macau into a tourism and leisure based city. Instead of trying to compete as a major port like Hong Kong, Macau would take advantage of the growth of its sister city and become a destination for the businessmen that worked in the British territory. In the same year, the city was named a permanent region for gaming, giving rise to the gaming company STDM, led by Hong Kong businessman Stanley Ho, commencing the modern history of casino complexes in the city.

In the opening speech of his time in office, Santos declared his intentions of bettering the city to this objective, while improving the lives of the current residents, with the help and resources sent by the Overseas Department in Portugal (*Boletim Eclesiástico da Diocese*, 1962). One of the entities most involved was the Public Works Bureau, which had created urban and institutional buildings' plans to be constructed in the Province of Macau. A team of young architects was sent to coordinate these projects, joining the Urbanism Department in the city.

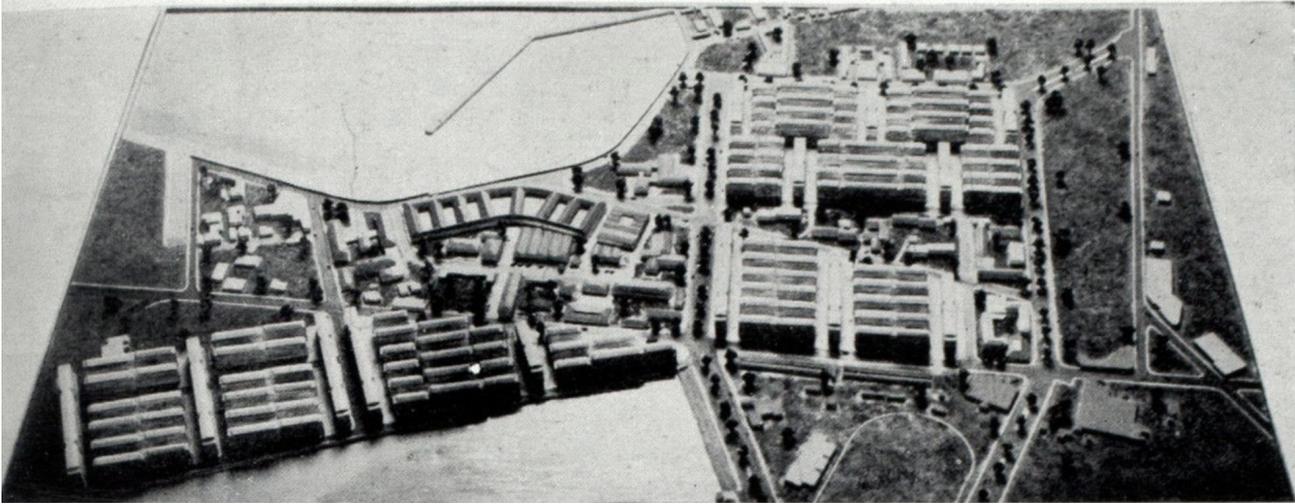
Prior to this, there were very few projects built in the territory that were designed by 'formal' architects, so this moment becomes essential to the architecture and built environment in the city's history.

The main urban plans were made in Lisbon by architect Leopoldo de Almeida, for the underutilized areas of Macau, namely the north of the peninsula, known as the Ilha Verde and Areia Preta, and in the southeast, namely ZAPE and Praia Grande, and between the islands that make up modern-day Taipa. This focus utilized earlier unfinished projects, which had not gone beyond the land reclamation stage.

The local Urbanism Department led the construction of these projects, including public services, such as the construction of a new school designed by Raul Chorão Ramalho, and housing estates of several levels to inhabit the redeveloped areas of the city.

From the 1950s to the 1980s, Ilha Verde and its surroundings were poorly documented in cartographic items, with only vague outlines of city blocks included. It was only in 1962 that the northern part of the city was designated separately from the rest of the peninsula, as the Parish of Nossa Senhora de Fátima, including the Outer Harbor area of Areia Preta.

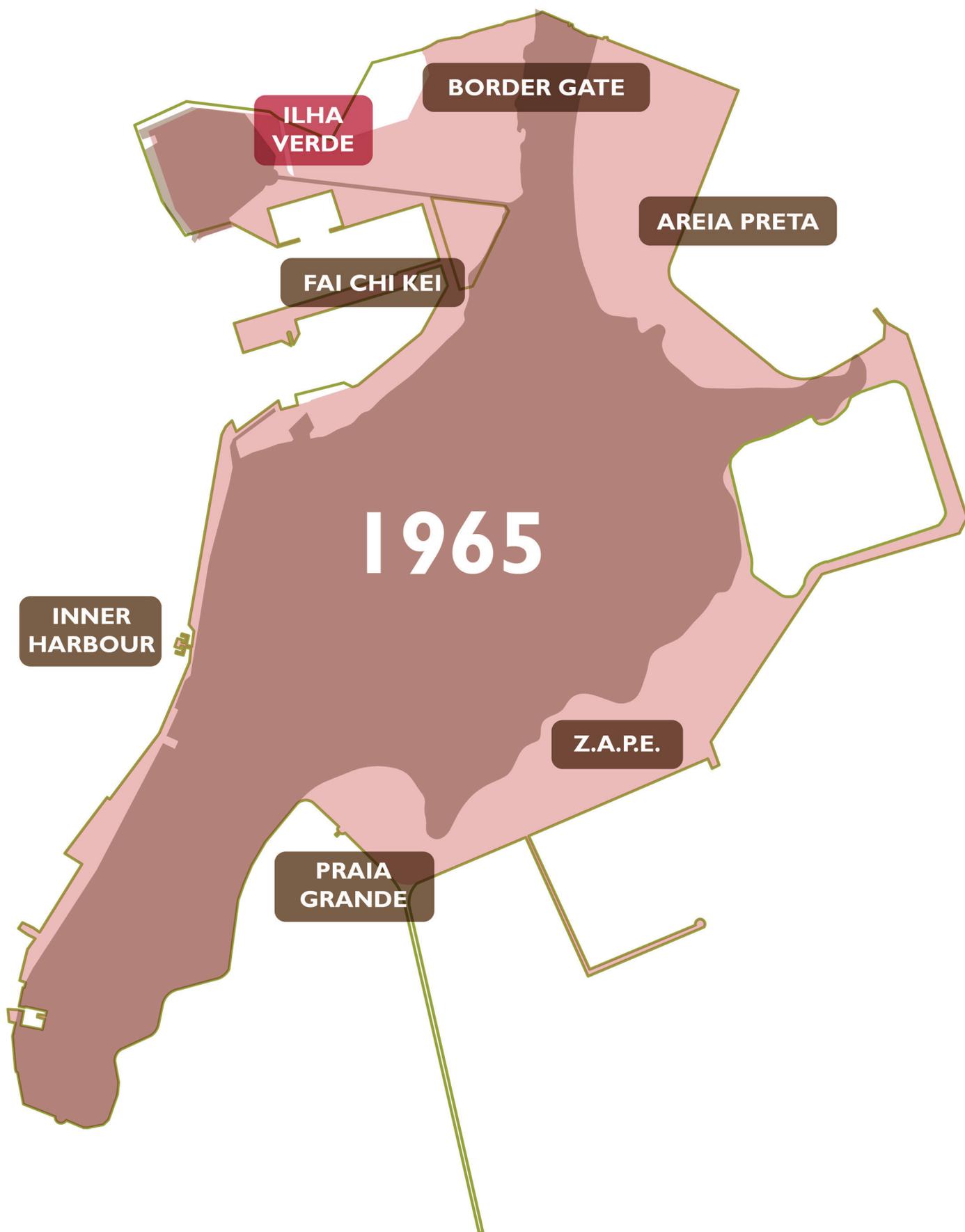
This model shows the Green Island project which will house 30,000 people.



[Fig. 32 – “Bold Development Plan for Macao.” Hong Kong Far East Builder 17, no. 3 (1962): 65.]



[Fig. 33 – Praia Grande Land Reclamation, with Chorão Ramalho's Commercial School on the left, and Economic Housing Block in Triangular site by José Maneiras behind it; in the background, Casino Lisboa in construction, 1960s. Archives of Macau]



[Fig. 34 – Map of Macau 1965.]

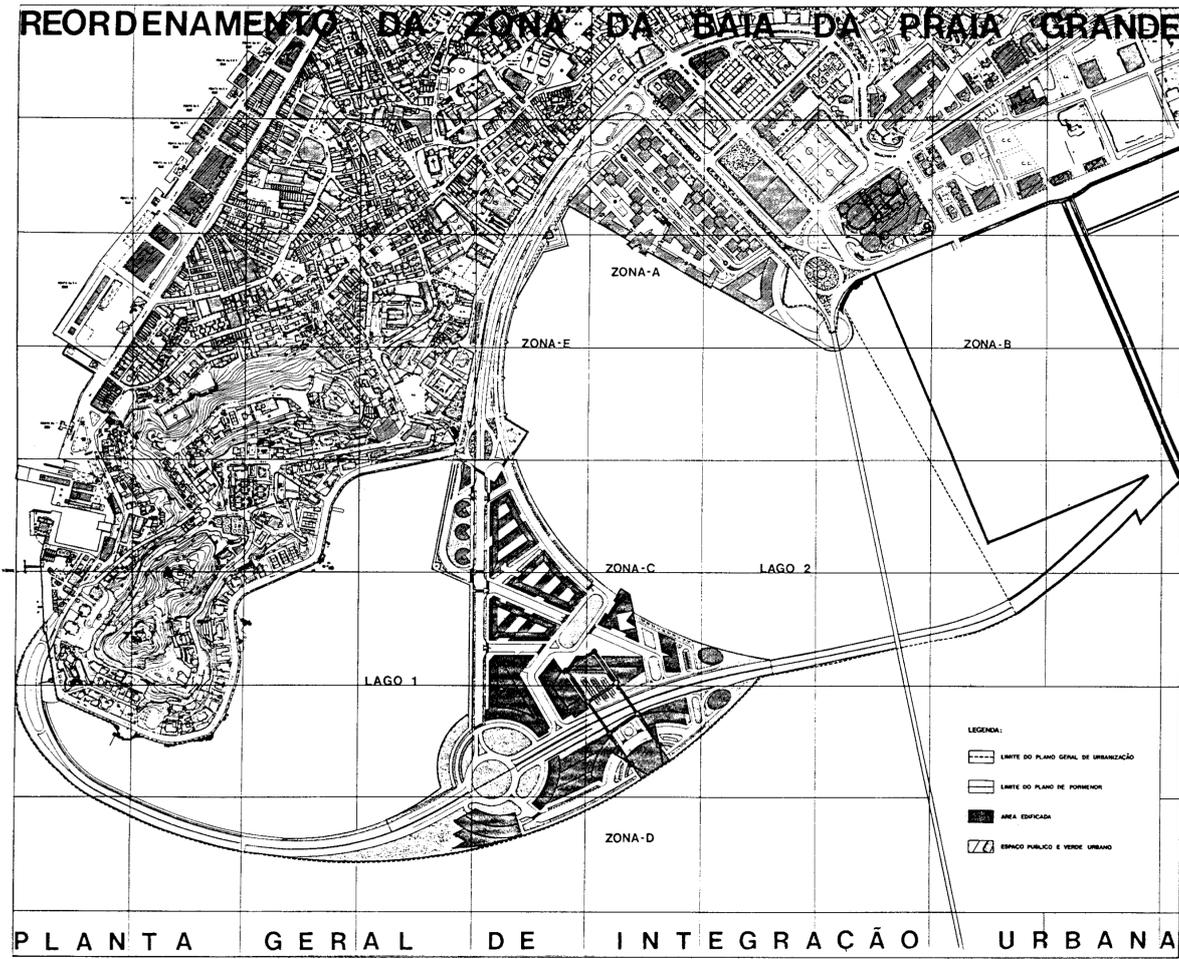
2.3.4 Exponential Growth & the Transitional decades

After 1974, and the continued rise of the population, further land reclamations were made alongside formal urbanism plans. These were mainly in the Outer Harbor, including the urbanization of Areia Preta, Novos Aterros do Porto Exterior (NAPE), and the enclosure of Praia Grande (Infante et al, 1995). The Inner Harbor grew in smaller instances, between natural silting and localized growth of harbor sites.

After the Handover in 1999, most land reclamation happened between the islands south of the peninsula, namely Cotai, and in the creation of islands to the east, one as a new urban zone next to the peninsula, and a second one, composed of the infrastructure accompanying the bridge connecting Hong Kong, Zhu Hai and Macau, inaugurated in 2018.



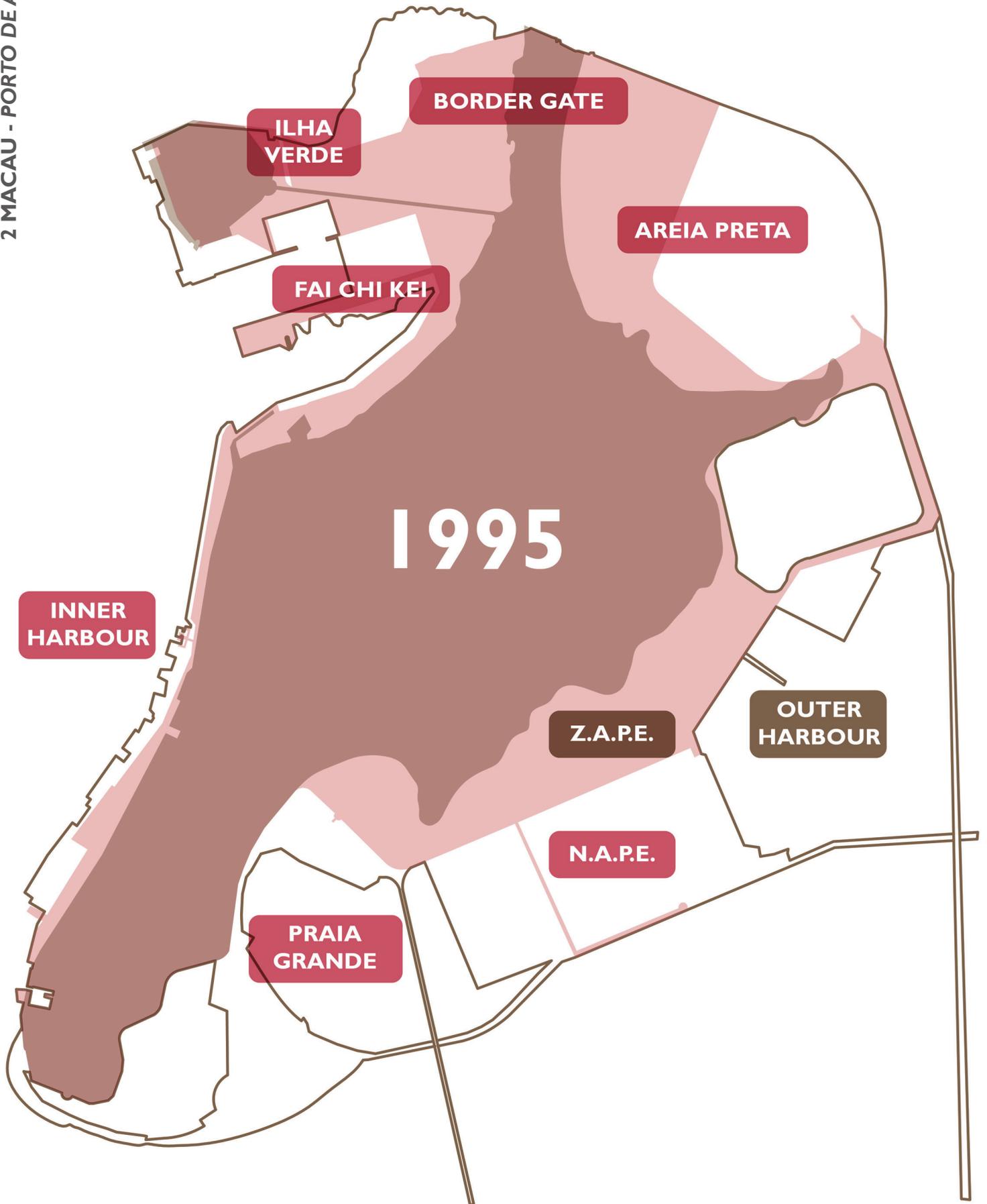
[Fig. 36 – Land reclamation in construction, 1970s. Photography by Lei Chiu Vang from Terence Lei's personal library]



[Fig. 37 – Urban Plan of the Close of Praia Grande. Lourenço Vicente’s personal library]



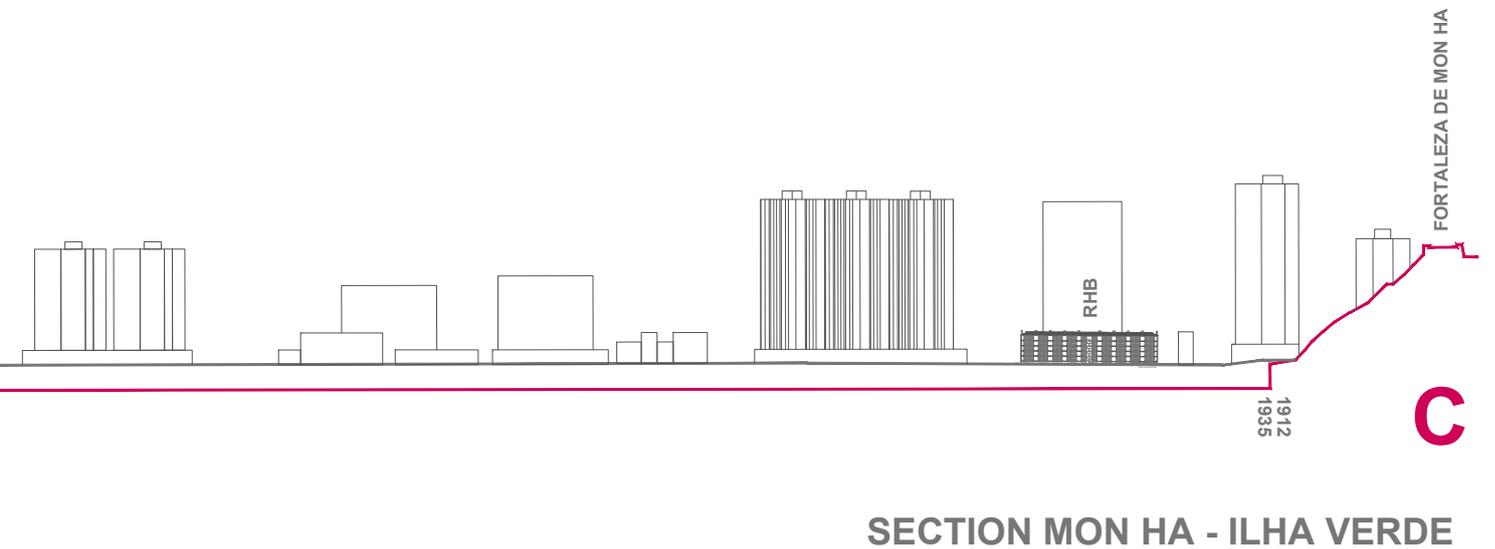
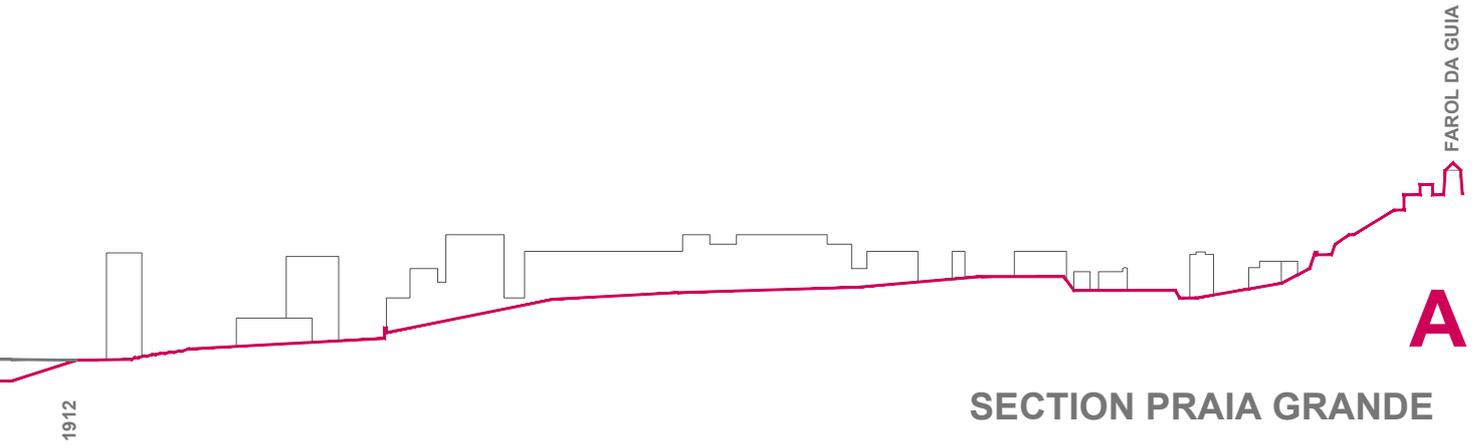
[Fig. 38 – Urban Plan of the Close of Praia Grande in construction. Lourenço Vicente’s personal library]



[Fig. 39 – Map of Macau 1995]

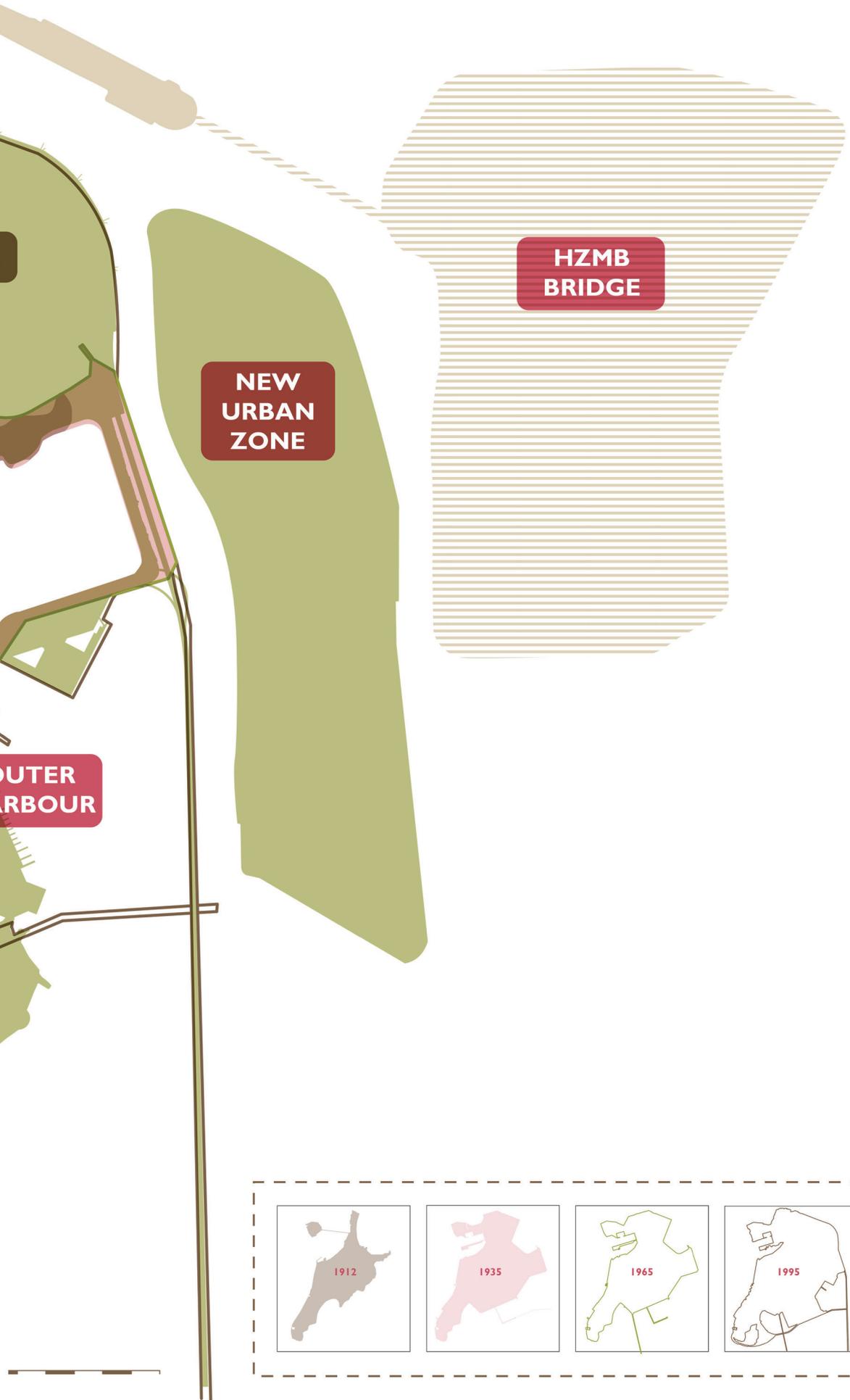


[Fig. 41 – Section Diagram of land reclamation evolution and urban growth of the Macau Peninsula]





[Fig. 42 – Map of Macau 2025]



3 PUBLIC HOUSING IN THE PEARL RIVER DELTA

After seeing the scope of Urbanization plans Macau had to develop to keep up with its growing population, so did the housing efforts. With a past of welfare relief and charity work being established in the city since the arrival of the Portuguese, public housing soon became a norm in Macau, unlike what happened in its European counterpart.

The Pearl River Delta has historically developed around the influence of Guangzhou, Macau and Hong Kong. The growth of the area as a significant economic region was primarily motivated by these hubs of commercial activity. Macau and Hong Kong, initially established due to their proximity to Guangzhou, were the primary drivers for the region's global-facing character, in part due to their role as colonial and imperial outposts. These two cities are intrinsically linked in their histories, even as Hong Kong quickly surpassed the older Macau in size and influence soon after its establishment.

As merchant hubs, migration towards these cities and their surroundings has been common throughout history, and housing in the small territories has been a documented issue since at least the 19th century. The way that local collective housing strategies have developed is a direct result of the cities' placement in the Pearl River Delta region as well as its commercial importance and associated migration; Hong Kong's Housing Authority origins are required to understand the growth of Macau's Public Housing.



3.1 Early Housing examples - Vernacular and Colonial style

The vernacular style of the Pearl River Delta is called Lingnan style, with various fishing and maritime motifs, constantly aware of its sub-tropical climate and the humid heat in the summer (Lung, 2000). This led to the traditional courtyard found in Chinese houses to be narrow and tall, optimizing shaded ventilation. While higher class houses had the courtyard in the middle of a two storey plan, poorer neighborhoods were built around alleyways, with two storey buildings surrounding a bigger communal courtyard, still providing shade and ventilation to several units rather than a singular home.

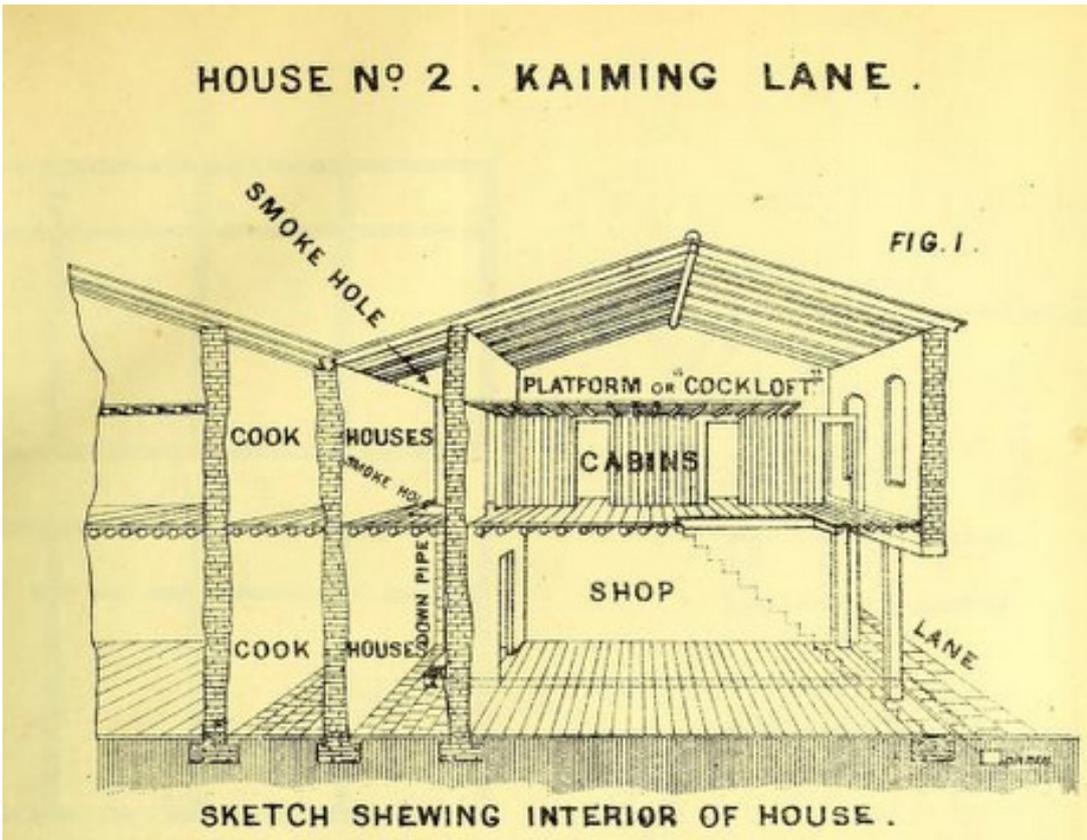
In both Macau and Hong Kong, there are strong examples of colonial architecture (Wong, 1970), with connections to the climate, style and needs of the local environment. Most housing examples still seen today are of a neo-classical design, with adjustments made to fit the tropical environment of the region, adding arcades/porches surrounding the main building, windows with shutters, and following the ventilation practices of Lingnan houses, many times including a courtyard.

With the exponential growth of the population, lower class housing began to be built in a dense and standardized way. The best example that incorporated both the local and colonial style is the Tong Lao, only seen in cities of similar background, such as Singapore (Chu, 2012).

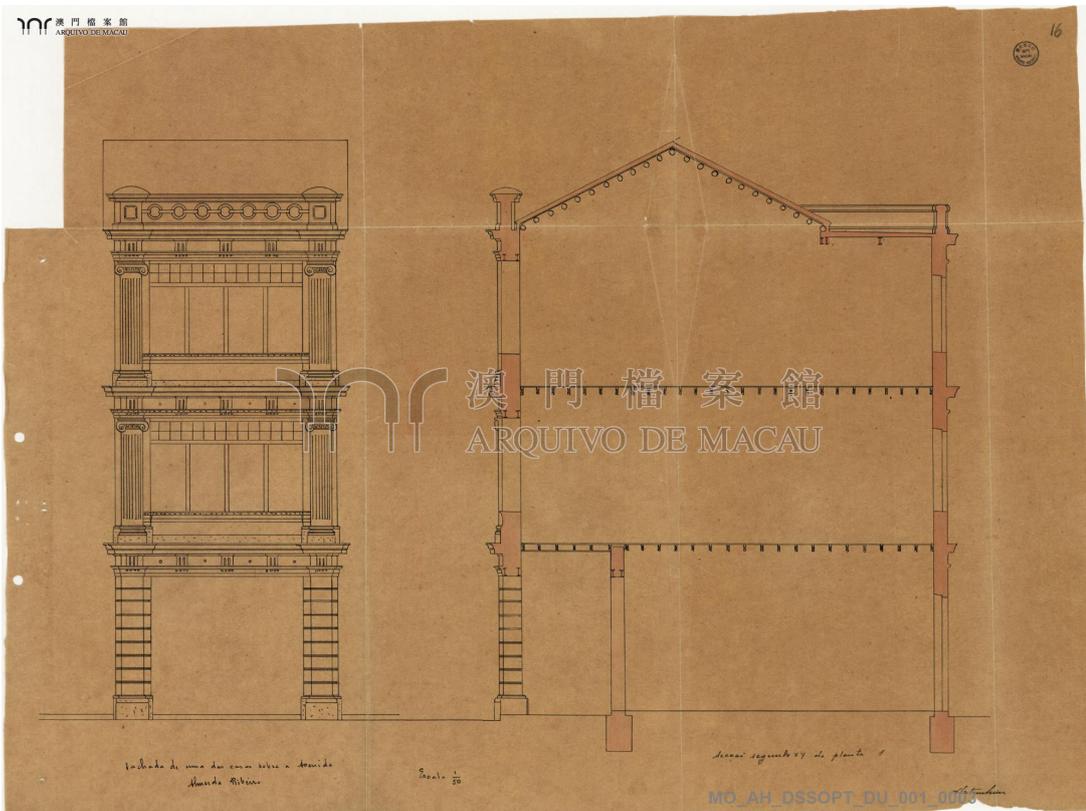
An early version of the Tong Lao could be found in Sheung Wan in Hong Kong, also named Tenement Houses. Built in rows alongside streets, the ground floor had a commercial function framed by its columns. The subsequent floors were subdivided in "cabins", and the back of the building included all "wet" facilities, with minimal ventilation through "smoke holes". These buildings were organized back to back, sharing the same back wall, without cross ventilation necessities, which led to unsanitary living.

The updated Tong Lao of the 20th century can be found lining one of the main streets of Macau, Avenida Almeida Ribeiro. The commercial function of the ground floor was set back, making space for a walkway through arcades, providing shade, ventilation, and protection from the rain to the pedestrians. Many of these had a mezzanine level within the storefront, and the circulation to the subsequent floors was either a separate corridor to the storefront, or was located at the back of the building. The front facade was usually decorated similar to colonial houses, arches lining each window, and later adopting an art deco style. In each level, windows at the back facade, usually less decorated, allowed for cross-ventilation. Still, many of the residential floors of these buildings were still subdivided into separate cabins, with partition walls that had ventilation features.

In Macau, the Tong Lao usually does not surpass 5 levels, which follows the building code still in place for buildings without an elevator. Hong Kong however, due to the quicker densification it needed, allows for buildings to reach 7-8 levels without an elevator. Most Tong Lao examples have 3 to 4 levels.



[Fig. 44 – Section of a typical Tenement House, 1882. Mr. Chadwick’s reports on the sanitary condition of Hong Kong, <https://archive.org/details/b2136591x/page/10/mode/2up>]



[Fig. 45 – Section of a Tong Lao in Avenida Almeida Ribeiro in 1939. Public Works Bureau of Macau, in Macau Archives, MO/AH/DSSOPT/DU/001/0003/15, <https://www.archives.gov.mo/WebAS/P/detail/8#gallery-15>]

3.2 Beginnings of Public Housing in Macau and Hong Kong

The first public housing project made in the Pearl River Delta was in 1920s Macau, in the northwest part of the peninsula. As previously discussed, this area of reclaimed land began through the Ilha Verde Isthmus and the Border Gate, and was a part of a bigger urbanization plan to update and connect the Inner and Outer Harbors. As has been shown, these large developed plots were quickly taken over by industrial complexes and attached informal worker neighborhoods, as government authorities abandoned or were slow to act on urbanization plans.

In 1925, the Toi San firecracker factory had an explosion, causing a devastating fire that destroyed a large number of houses surrounding it. With a growing population and a large group of unhoused residents, the Portuguese administration decided to build a resettlement neighborhood of single story blocks, following the urban layout then in construction, building a safer infrastructure and adding plumbing for the surroundings of the main built-up area.

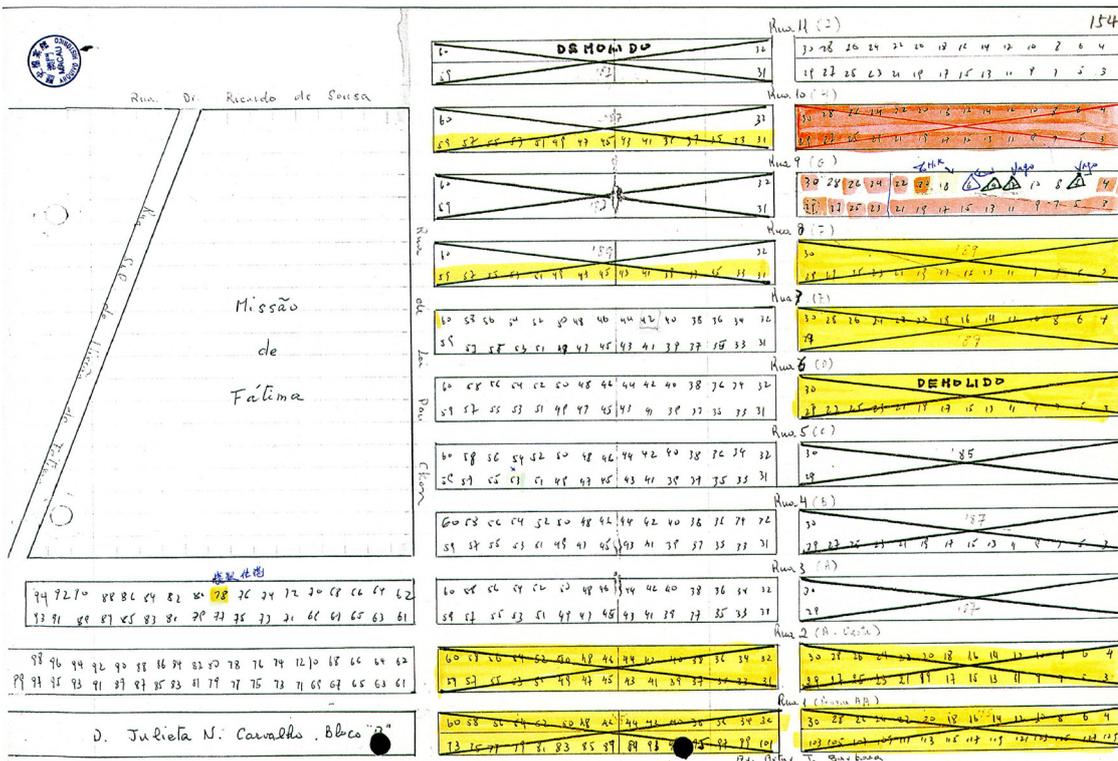
Named after the Governor of the time (Silva, 1995), the Tamagnini Barbosa neighborhood began construction in 1927, with continuing construction of blocks according to the funds and needs of the population, said to be concluded by 1935 (Chan and Lao, 2025).^[5]

The Bairro Tamagnini Barbosa (bairro meaning neighborhood in Portuguese) had a simplistic design, each block having back to back units with a courtyard. The entrances to the residences were lined along the long side of the block, each unit with a door and a window, repeating through this plastered wall, reminding the style of a street within a Portuguese village. The shorter side of the block was a side profile of the residences, with an offset white line; two pitched roofs and a horizontal line in-between, where a shorter covering separated each unit's courtyard throughout the block. These features were made in the construction style of Lingnan buildings, images from above showcasing the similarities to a traditional Chinese courtyard house.^[6]

Thus began mass-housing efforts in the Portuguese Province of Macau, mainly targeted to the lower class population and the rising number of immigrants. The organization of the neighborhood was followed by the Social Welfare Bureau, quickly becoming tied to social relief services and charity organizations in Macau. The main agencies involved in these projects were the House of Holy Mercy and the Tun Sin Tong Charitable Society (Boletim Eclesiástico da Diocese de Macau, 1924-25).^[7] All subsequent public housing neighborhoods would have relief-oriented hubs to distribute food, as well as schools, infirmaries/clinics and orphanages (Chan and Lao, 2025). The House of Holy Mercy managed the funds and personnel, receiving donations from the local government and its Overseas department in Portugal, foreign relief funds of varying countries, and even from philanthropists from the Pearl River Delta (Anuário de Macau, 1955-57; Boletim Eclesiástico da Diocese de Macau, 1962).

[5] Drawings of the Tamagnini Barbosa neighborhood are mainly urbanistic or administrative. In Macau maps from 1930-1980, this area of the city delineates each residential block in a repetitive nature, vaguely following the diagonal line of the 1920 Harbor urban plan. Closer drawings of the neighborhood only provided the division of each unit within the street plan of the city, used by the Social Welfare Bureau to categorize the residents, price of rent, damages and reconstructions of the units that were still within its jurisdiction in the early 1980s, before the demolition of the full neighborhood [Fig. 18].

[6] From the drawings of the previous footnote, and archival pictures of the neighborhood prior to its demolition, an understanding of the possible layout of the units is vaguely described in this paragraph, and observations based on photos of the buildings in different times allow for the writer's interpretation of the mixed style of the low-rise buildings [Fig. 19].

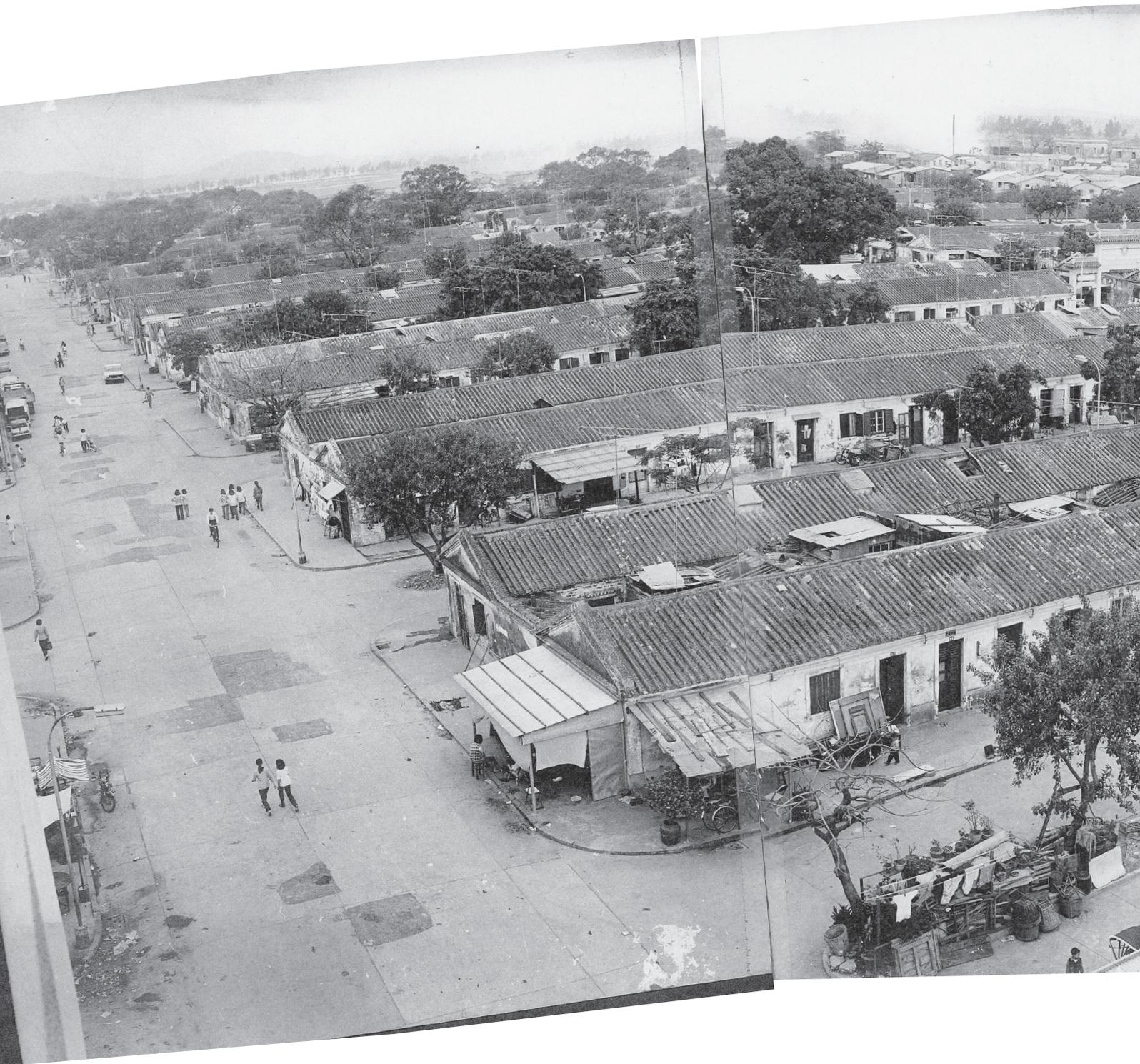


[Fig. 46 – Administration of Bairro Tamagnin Barbosa, 1980. Macau Archives, MO/AM/IAS/DSS/0095]

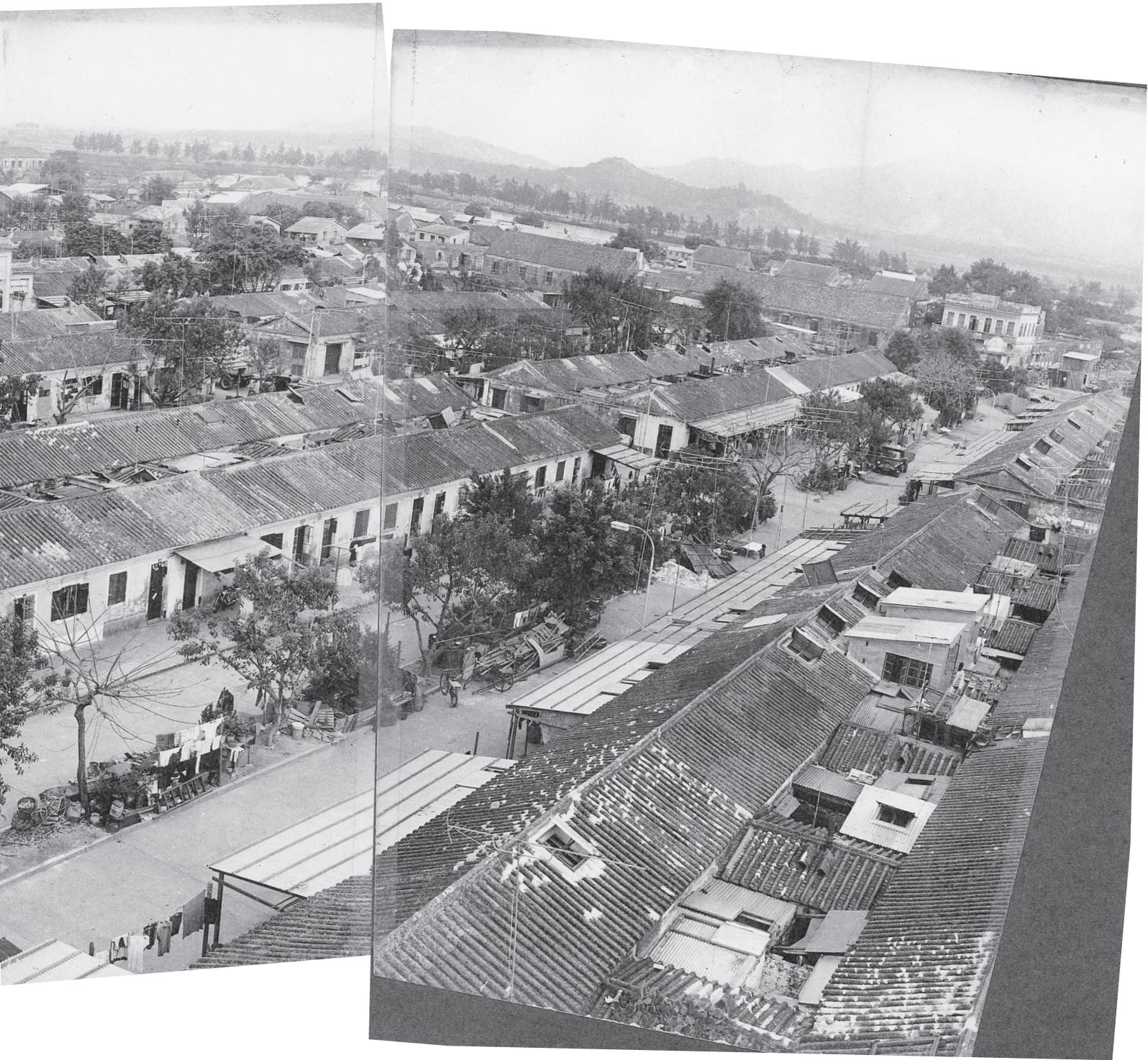


[Fig. 47 – Original Bairro Tamagnini Barbosa in the foreground, with new towers of Tamagnini Barbosa Estate on the right, Economic Housing Estates on the left, 1989. Macau Archives, MO/AM/SLD/1/065]

[7] Tung Sin Tong Charitable Society was founded in 1892, and is a common partner to the Social Welfare Bureau to this day. Created by the local Chinese population, it quickly became as relevant in relief and medical services as the Christian organizations that provided similar care. However, the writer has very little knowledge of Cantonese and Mandarin, and is only fluent in Portuguese and English, narrowing the scope of literature of this thesis to the latter languages. Most of the research on the subject of charity organizations was through the Diocesan Archives, and documents from the Portuguese administration, with frequent mention of Tung Sin Tong, but little detail on the divisions of contributions.



[Fig. 48 – Bairro Tamagnini Barbosa Panorama, taken from Block B of Maria Julieta Nobre de Carvalho Estate, 1972. Macau Archives, MO/AM/FOTO/3]

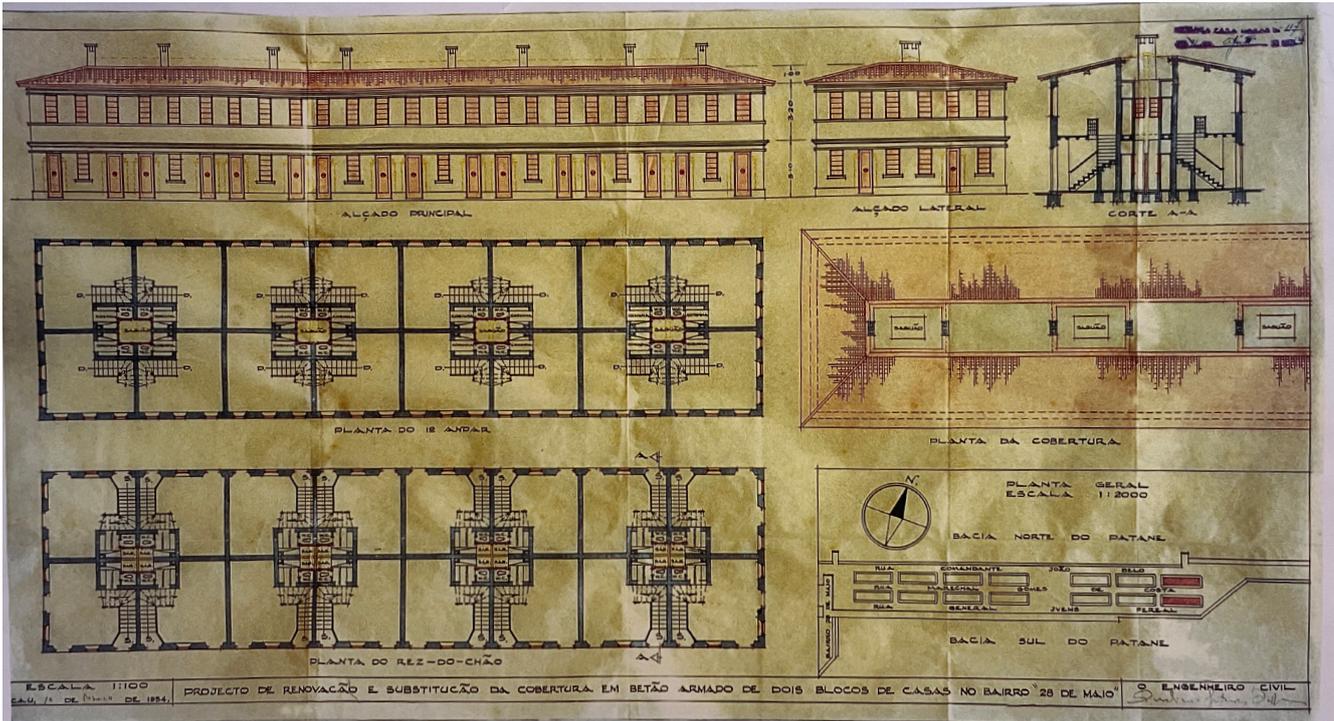




[Fig. 50 – Bairro 28 de Maio, 1930-50. Archives of Macau]



[Fig. 49 – Bairro 28 de Maio/Fai Chi Kei, 1970s, Photography by Lei Chiu Vang from Terence Lei's personal archive]



[Fig. 51 – Roof renovation project for Bairro 28 de Maio, 1954. Macau Archives, MO/AH]



[Fig. 52 – Bairro da Ilha Verde. Macau Archives, <https://www.archives.gov.mo/WebAS/P/detail/70439>]

Later, at an undetermined time after 1926 (葉農, 2016), another fire disaster closer to the Pantane area led to a more densified approach. In a strip of land created south of the Ilha Verde Isthmus, a series of two-storey blocks were made to re-house citizens affected by the fire, and later continuing relief accommodations to new residents of the city, at the time known as Bairro 28 de Maio, later Fai Chi Kei (Chan and Lao, 2025).^[8]

These buildings divided units throughout the block stacked on both levels, the upper floor entrance on the ground floor leading to a staircase. The repetition of the units was in 8 apartments, each apartment consisting of a main studio space, with the bathroom and kitchen being at the back connecting to a ventilation shaft. These units had poorer conditions than the Tamagnini Barbosa neighborhood, with worse ventilation and hygiene, but achieving better densification.

Information from this time to after the 1940s becomes muddled due to the aggravating political conditions around Macau, as previously mentioned. The amount of refugees in the city was beyond what it could accommodate, exacerbated by Japanese blockades to goods into the city, leading to famine and a high number of fatalities.

Later, in 1952, another fire ravaged the Ilha Verde area, to which the government resolved by building low cost and fast construction of zinc shacks to be completed a month after the disaster (Macau - Boletim Informativo, 1955).^[9]

[8] The Fai Chi Kei neighborhood took as its name the date of the Portuguese military coup of the 28th of May of 1926, when the First Republic fell, which led to the later establishment of the Estado Novo in 1933. After the 1974 Portuguese Democratic Revolution, the name was changed into the phonetic Chinese name of Fai Chi Kei, meaning “Chopsticks Base”, as most of this area had piled houses above the sea-line, and large wooden rods brought in with the tide often remained there.

[9] There is very little information about the Ilha Verde neighborhood. In the maps, a cluster of small shelters arranged in a grid-like formation next to Ilha Verde matches the description given in the cited magazine. To further support this theory, under folders of the Ilha Verde area or poor neighborhoods within picture archives, images of roads lined with tightly packed neat rows of zinc houses, unlike the more informal shacks scattered in the Outer Harbor farmland. Furthermore, the general location of this neighborhood corresponds to the current high-rise Ilha Verde Social Housing Estate [Fig. 29].

MORADIAS PARA POBRES

A criação de qualquer organização tendente a melhorar a situação da humanidade, é sempre desejada e acarinhada pelos povos de todo o mundo. E numa altura desta em que os progressos da ciência e da técnica no campo de aperfeiçoamento dos engenhos de destruição tendem a colocar o ser humano à beira de uma catástrofe, à realização de obras sociais para o bem-estar dos que necessitam, reveste-se de duplo significado e valor.

É evidente que apesar dos esforços sobre-humanos para abolir a miséria, ela persiste, a ponto de ser a geradora de vícios e de toda a espécie de desgraças. Quem procura sarar os males que infestam especialmente a classe pobre, não há dúvida que está a praticar um nobre acto, digno de todos os encómios. Mas se um grupo de indivíduos se empenhar em combater pela liberdade dos outros, arrancando-os da malha de miséria, esse trabalho será melhor realizado e mais rendoso. Refere-se isto ao Governo da Província e às Missões Católicas de Macau.

Nesta Província a assistência social faz-se com toda a intensidade, verificando-se nos locais afastados da cidade grandes obras em

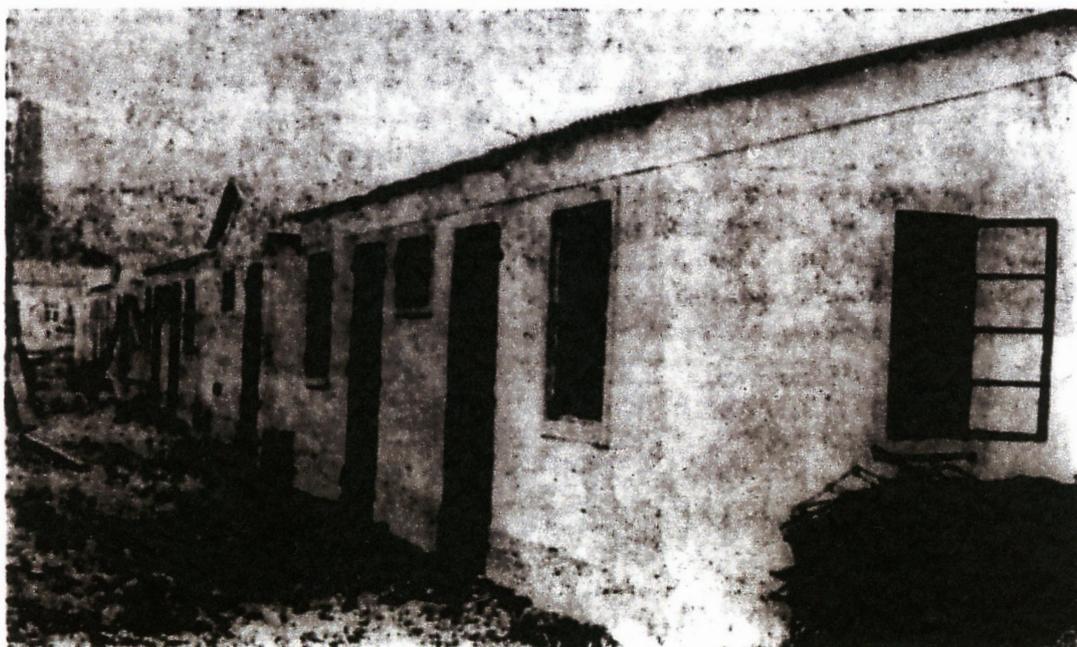
progresso, e a cada passo procede-se à inauguração de moradias, de melhoramentos, e de infantários, tudo isto destinado aos pobres.

As Missões Católicas de Macau bem como a «Catholic Welfare» de Hongkong, têm contribuído muito para o incremento dessas obras, dispensando ao mesmo tempo aos católicos pobres auxílio moral e espiritual.

Há tempos, no Istmo da Ilha Verde, inaugurou-se um Infantário, anexo ao qual funciona um Dispensário. Ambos ao cuidado das Madres Angelinas têm sido o centro dos pobres, pois é ali que as mães operárias podem confiar nas mãos daquelas servas de Deus, os seus filhinhos durante a sua ausência no trabalho.

E agora, apenas alguns meses passados, é com satisfação geral que se vêem quase concluídas as 20 moradias de linhas modernas que a «Comissão de Socorros» das Missões Católicas mandou construir, no Bairro da Ilha Verde.

É mais um passo na escala do progresso em benefício dos pobrezinhos que vão ter casas onde podem abrigar-se das intempéries, evitando o relento que tanto mal faz à saúde.



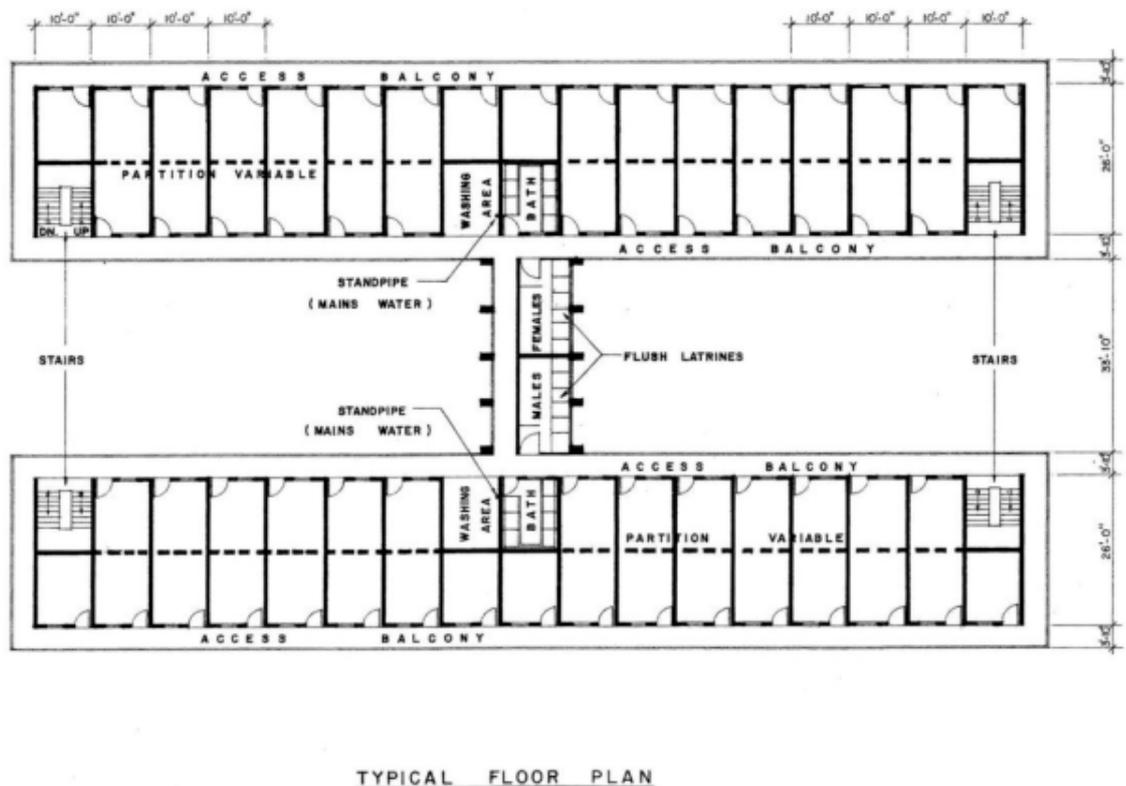
Um aspecto das novas moradias para pobres quase concluídas

[Fig. 53 – News article about the quick construction of resettlement shelters for the affected victims of the 1952 fire. *Boletim Informativo da Repartição central dos Serviços Económicos - Secção de Propaganda e Turismo*, 31 Agosto 1952, Macau Archives, PPR.020]

Hong Kong's first mass housing project was in Shek Kip Mei, in Kowloon Peninsula, in 1953. When a devastating fire unhoused much of the refugee population that lived in wooden informal houses in Sham Shui Po, the British colonial administration decided to develop a public housing program to rehouse the people affected, as well as urbanize the area so it would have safer infrastructure (Smart, 2006). An early temporary solution was low-rise blocks in rows.

The permanent solution was the Shek Kip Mei Low-Cost Housing Estate, built the following year, which consisted of H-shaped blocks, with single-room apartments along its length. Corridors completely surrounded the apartments, creating a shaded environment within the units, as well as having entrances and windows on both sides, allowing for cross-ventilation. Vertical circulation cores existed in all corners of the H, with shared facilities being located at the center of the buildings, with kitchens and bathrooms interchanging by floor.^[10]

This began the system of public housing as a governmental department, known as the Housing Authority of Hong Kong, with a rise in developments of different scales and economic levels.



[Fig. 54 – Typical Floor Plan of Shek Kip Mei Estate. From Gwulo - Old Hong Kong blog, <https://gwulo.com/media/47081>]

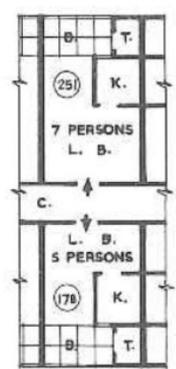
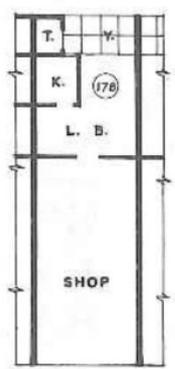
[10] Currently, this estate is survived only by the hostel of Mei Ho House, which houses a museum detailing these events within Hong Kong history.



[Fig. 56 – Shek Kip Mei Blocks in the background, temporary shelter in the foreground. *Six-storey blocks in Shek Kip Mei, September 1954*, from Gwulo - Old Hong Kong blog, <https://gwulo.com/media/47091>]

HONG KONG HOUSING AUTHORITY

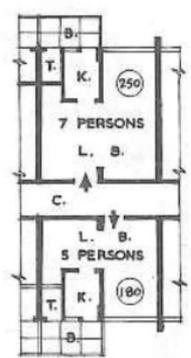
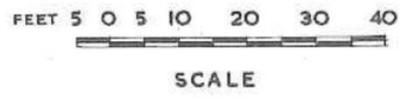
FUK LOI ESTATE TYPICAL PLANS OF HOUSING UNITS



LEGEND:

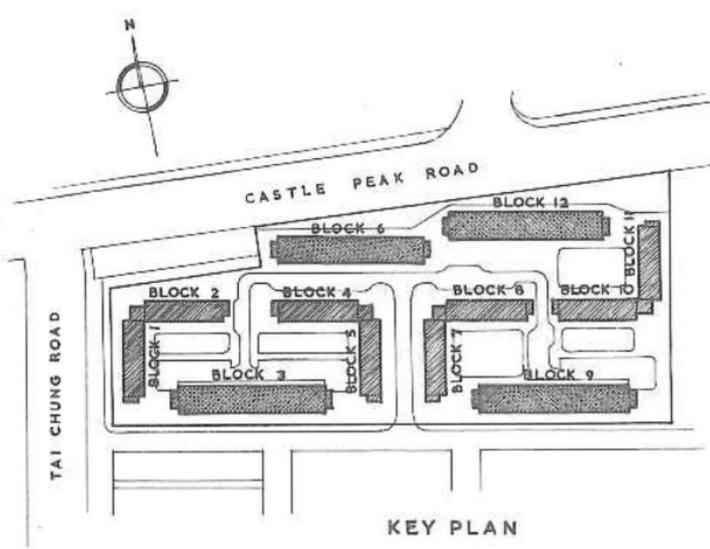
- L. B. — LIVING BED ROOM
- K. — KITCHEN
- T. — W. C. & SHOWER
- B. — PRIVATE BALCONY
- C. — ACCESS CORRIDOR
- Y. — YARD

BLOCKS: 3, 6, 9 & 12.



BLOCKS: 1, 2, 4, 5, 7, 8, 10 & 11.

LIVING BED ROOM AREAS
PLANNED ON 35 SQ. FT. PER PERSON
⊙ INDICATES FLOOR AREA IN SQ. FT.



KEY PLAN

[Fig. 57 – Fuk Loi Estate. Hong Kong Housing Authority. Annual report, 1961-1962, <https://digitalrepository.lib.hku.hk/catalog/0z70gz64d#:c&m&s&cv&xywh=-3196%2C-142%2C8190%2C2762>]

Meanwhile, Macau had a similar need for housing estates as the population grew beyond what the territory could accommodate. However, as first mentioned in this section, and unlike British Hong Kong's new perspective of helping the local population thrive, the colonial ideology of the Portuguese government prioritized the middle to upper class, leaving less funding to the lower class needs.

As seen in Chapter 1, the Portuguese Overseas Ministry invested in urbanization projects throughout their colonies, initially developed in Lisbon, and then coordinated with the local Public Works Bureau of each province. Unlike most territories, however, Macau's physical distance to the fascist government, and the continuing relief-work that historically happened in the region, led to some public housing estates for low-class residents, unlike what was happening in Portugal and other Portuguese colonies.

With the connection with the Overseas Public Works Department, up-and-coming Portuguese architects began to work on projects beyond their home country, at first related to government efforts, but later simply adjacent. In Macau, Raul Chorão Ramalho provided free design work for low-rent rows of houses in Ilha Verde, funded by the Holy House of Mercy and other relief organizations (Boletim Eclesiástico da Diocese de Macau, 1962).

With the arrival of the new governor Lopes dos Santos in 1962, the new sector of the Urbanism Department of the Public Works Bureau of Macau was created. This department was to follow the construction of urbanism plans made by the architect Leopoldo de Almeida from the Overseas Ministry in Lisbon, as well as institutional plans by Raul Chorão Ramalho. It initially consisted of a team of recent and soon-to-be Architecture graduates, namely Henrique Mendia, João Ramires Fernandes, Jorge Silva, José Maneiras, Maria Natália Gomes and Manuel Vicente.

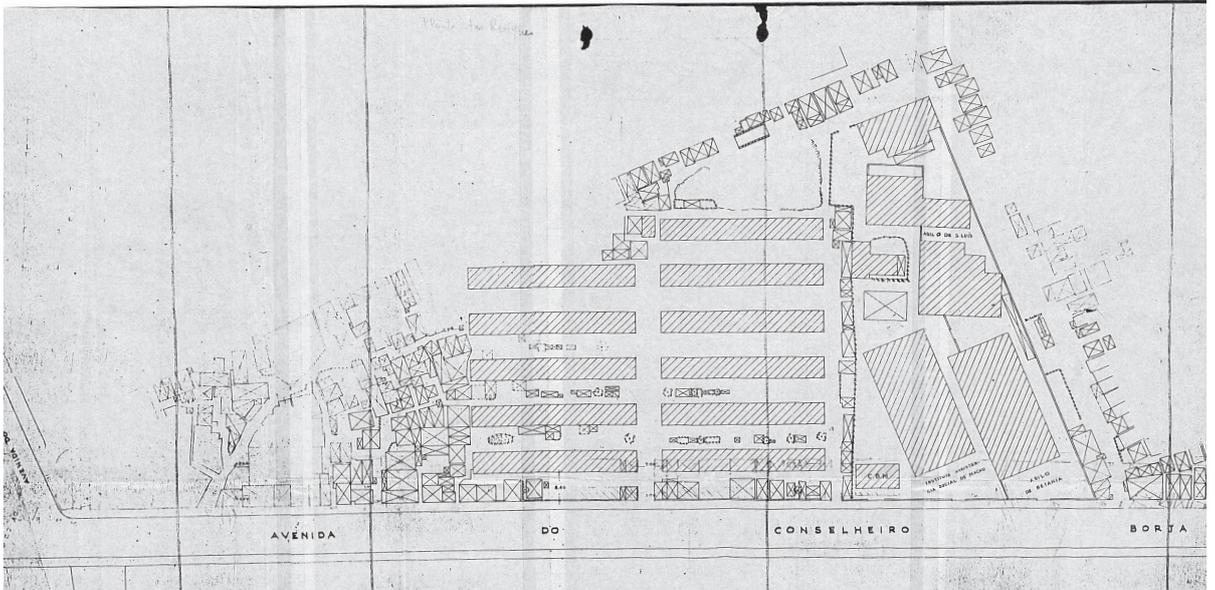
In the years between 1962 and 1966, this team developed Public Housing projects within the Brigade for Studies, Works and Projects of Development Works (Brigada de Estudos, Trabalhos e Projetos de Obras do Fomento),^[13] a provincial government section that divided funding between the different construction projects the city had the need for (Anuário de Macau, 1962), which included housing for varied economic levels. To better understand the environment they were now in, they conducted a "field trip" to Hong Kong, carefully analysing the latest developments of the quickly densified city, even procuring drawings from estates in construction by the Housing Authority (Gomes, 1971; Gomes, 2024).

Manuel Vicente was the unofficial lead architect of the team, conducting monthly meetings with the governor about the developments of the department. While each architect led their own projects, the team often exchanged ideas, working as a collaborative atelier (Vicente, 2013; Gomes, 2024). All projects done by Manuel Vicente at this time always mention Maria Natália Gomes as a collaborator, then Vicente and married to the former, not yet graduated.

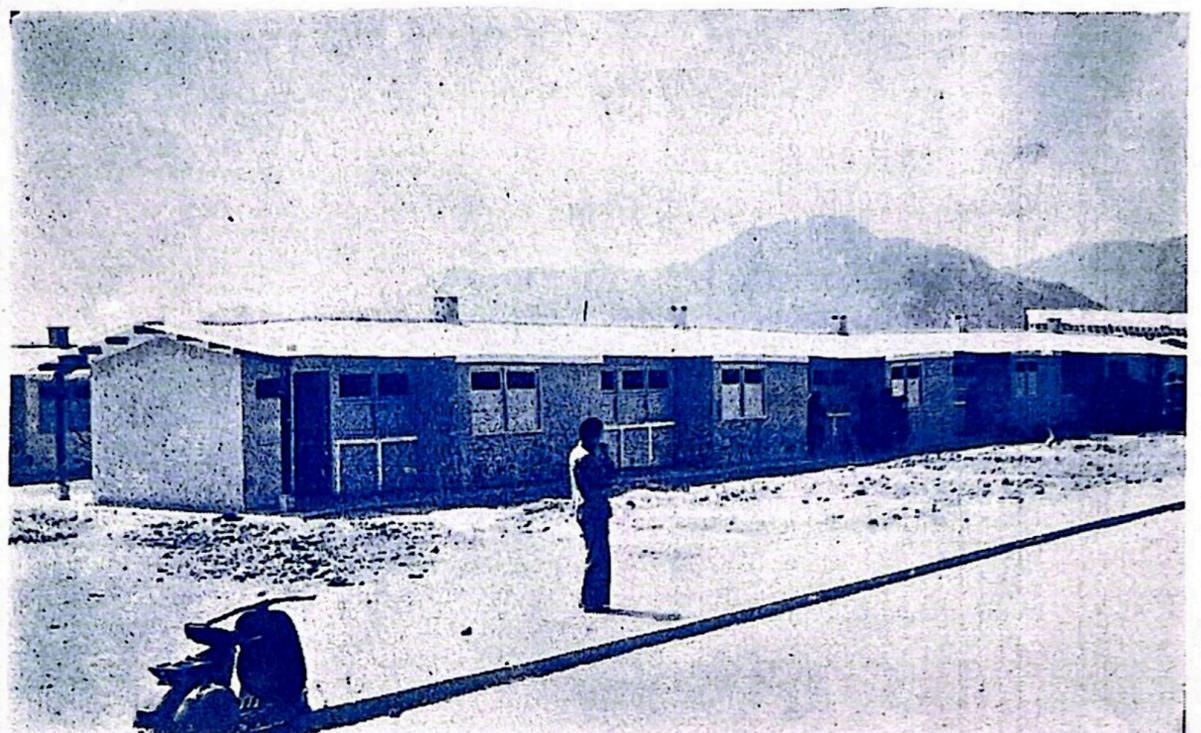
[13] To differentiate the projects discussed in this thesis made by the Urbanism Department in the 1960s, the author included the creation of the Brigade as the source of the housing projects developed by the same team. The public housing projects were many times within the urban plans made by the Overseas Ministry, but the design of each building was by the architects themselves, without the supervision or prior planning of the overarching colonial government.



[Fig. 58 – Housing Estates done by Urbanism Department in the 1960s]



[Fig. 59 – Plan of low-rise neighborhood by Raúl Chorão Ramalho. Macau Archives, MO/AM/DSS-NACLFO]



[Fig. 60 – Homes by Raúl Chorão Ramalho, near Ilha Verde. “Catholic Welfare 100 Casa Económicas na Ilha Verde”, in *Boletim Eclesiástico da Diocese de Macau*, 1962]

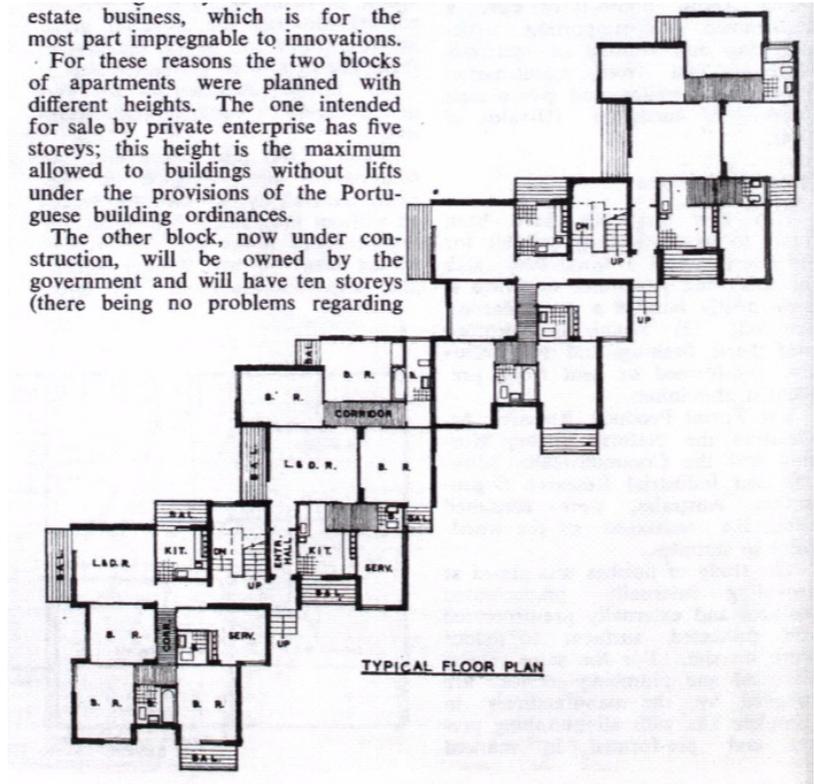


[Fig. 62 – Resettlement Housing Blocks in the background, picture taken from sports field and Canidromus 28 de Maio next to Mong Ha Hill. Arquivo Histórico Ultramarino, <https://actd.iict.pt/view/actd:AHUD32024>]

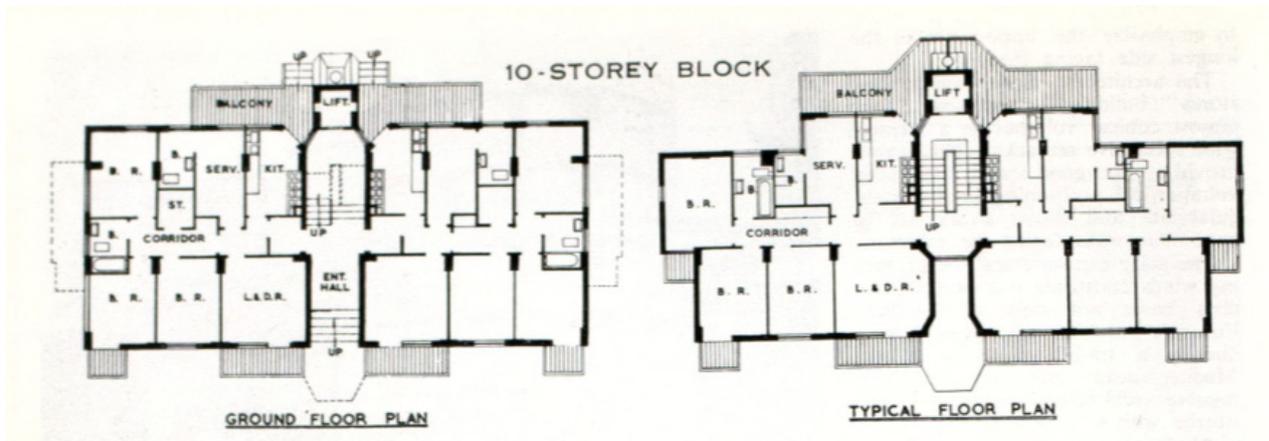


[Fig. 61 – Resettlement Housing Block by Maria Natália Gomes and Manuel Vicente. “Inauguração dum bloco residencial para famílias pobres”, in *Boletim Eclesiástico da Diocese de Macau*, 1966]

estate business, which is for the most part impregnable to innovations. For these reasons the two blocks of apartments were planned with different heights. The one intended for sale by private enterprise has five storeys; this height is the maximum allowed to buildings without lifts under the provisions of the Portuguese building ordinances. The other block, now under construction, will be owned by the government and will have ten storeys (there being no problems regarding



[Fig. 63 – Economic Housing Estate by José Maneiras. “Multi-Storey Flats on Triangular Site” in *Far East Architect & Builder*, issue of April 1965]



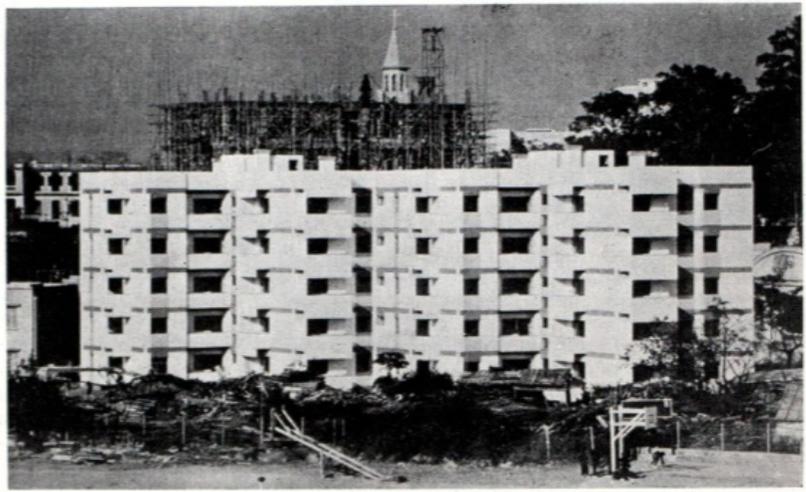
and the flats in the smaller building were sold for 40–45,000. These prices, including profits to the investors and contractors, are the usual ones and explain the almost non-existence of grandiosity or outstanding quality in the new housing schemes built in Macau in recent years.

Architectural Character

The two buildings were designed as complementary elements. There is a rhythm of projections and recesses and modulation.

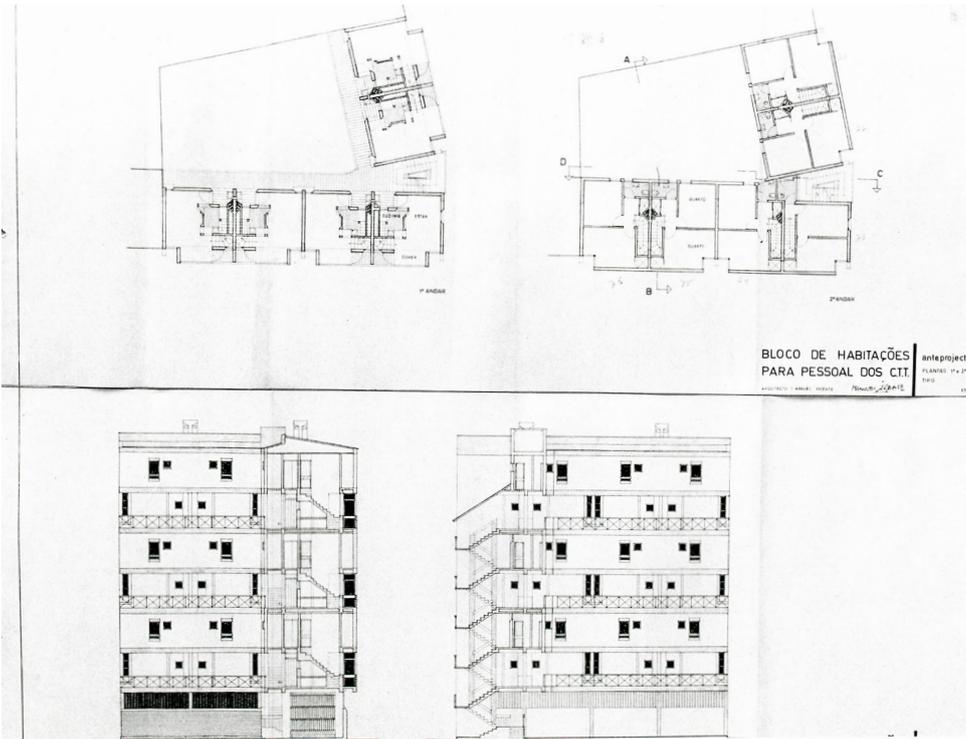
Balconies are used as a means of protection against the sun in summer, and have in some cases side panels as shelter from the northern winds in winter.

The blocks are intended to comply with the new town planning by-laws to be implemented in this urban district (Praia Grande), which will

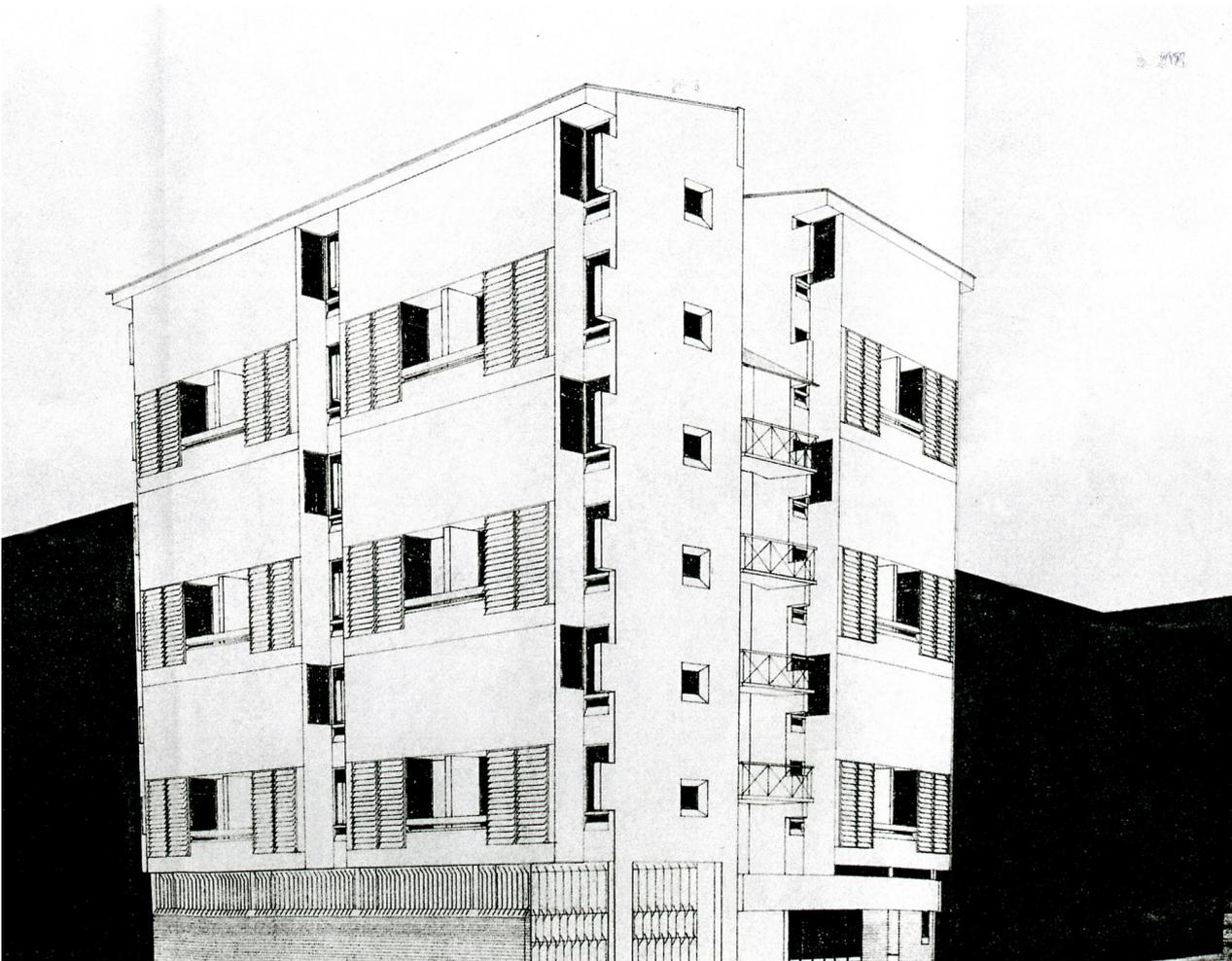


View from the south west of the five-storey block and the ten-storey block under construction at the rear. Most of the windows face south for a better intake of summer breezes

[Fig. 64 – Economic Housing Estate Tower by José Maneiras. “Multi-Storey Flats on Triangular Site” in *Far East Architect & Builder*, issue of April 1965]



[Fig. 66 – Drawings of CTT Duplex Block near Mong Ha Hill by Manuel Vicente. Macau Archives, MO/AM]



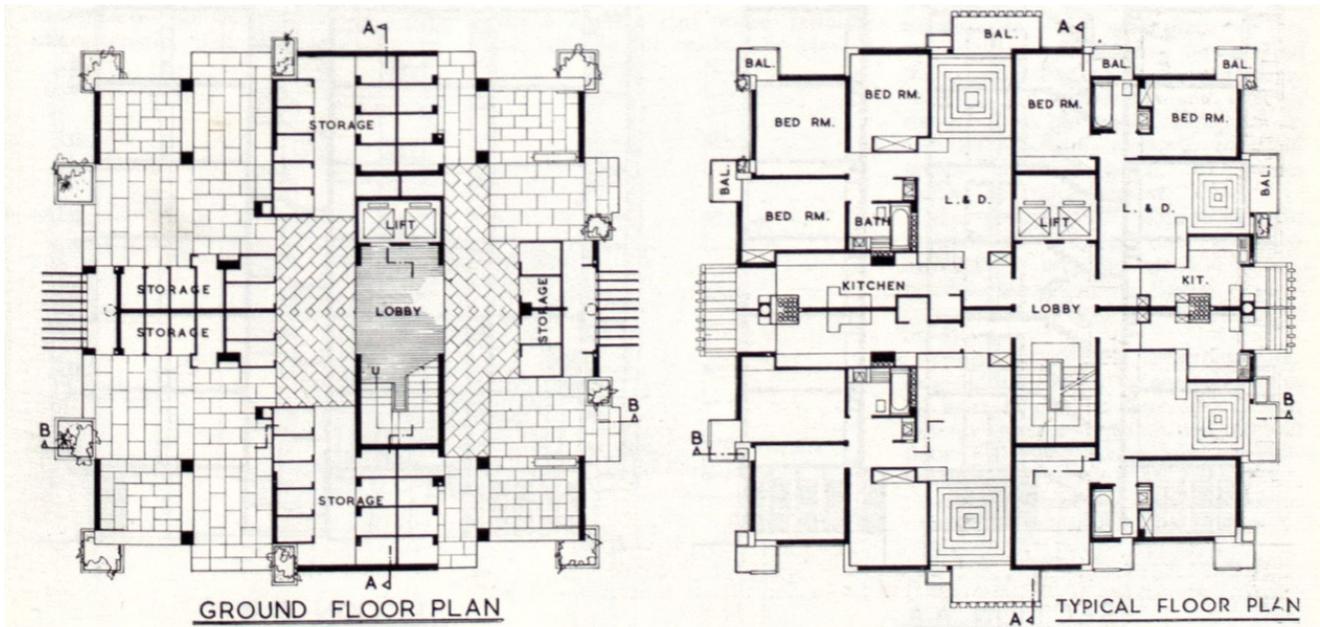
[Fig. 65 – Perspective view of CTT Duplex Block near Mong Ha Hill by Manuel Vicente. Macau Archives, MO/AM]



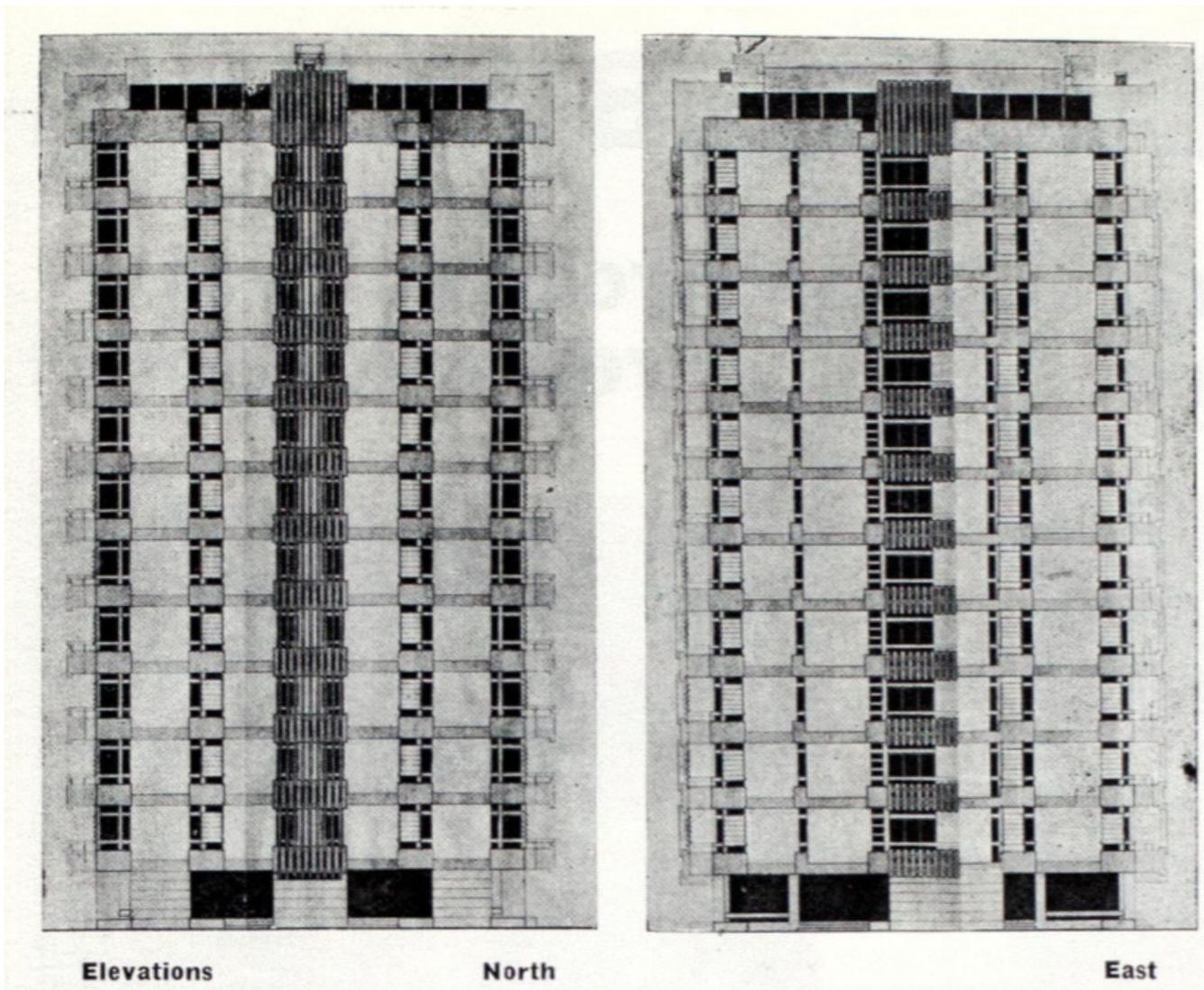
[Fig. 67 – Outer Harbor from Guia Hill, with CTT Tower next to the bridge. Photography by Lei Chiu Vang from Terence Lei's personal archive]



[Fig. 68 – Outer Harbor viewed from the port (current NAPE), with Casino Lisboa and CTT tower as a focal in the background. Photography by Lei Chiu Vang from Terence Lei's personal archive]



[Fig. 69 – CTT Tower Plans by Manuel Vicente and Maria Natália Gomes. “Tower Apartment Block” in *Far East Architect & Builder*, issue of May 1965]



[Fig. 70 – CTT Tower Plans by Manuel Vicente and Maria Natália Gomes. “Tower Apartment Block” in *Far East Architect & Builder*, issue of May 1965]

The team elaborated many housing projects for the Post Office Bureau (Correios e Telecomunicações de Macau - CTT),^[14] which included varied typologies according to the level of the workers that the residence was destined to. Jorge Silva and Henrique Mêndia made housing projects for higher CTT employees, a block close to the main headquarters of the Post Office, and a row of residences in the D. Maria Hill in the east of the peninsula. Manuel Vicente and Maria Natália Gomes made two developments, a duplex block near the newly installed CTT branch near Mong Ha Hill, and a high-rise residential block next to the Casino Lisboa, in the new urban plan of ZAPE. João Ramires Fernandes and José Maneiras made Economic Housing Estates, in Taipa and Praia Grande, following the public housing ideology that the Portuguese Overseas government had a focus on.

Alongside these, a single project was developed for low-cost housing, led by Maria Natália Gomes in co-authorship with Manuel Vicente: the Resettlement Housing Block of Ilha Verde (RHB). Two typologies were developed, while only one was built at the time, and was only possible due to charity organizations working with the Social Welfare Bureau. This will be explored in further detail in the next chapter and is this thesis' main focus of intervention. It is one of the few remaining buildings of this era, and the only project of this time in Macau led by a woman.

In 1965, the Far East Builder Magazine reported on the works developed by this team of architects, highlighting Maneiras, Ramires and the then Vicentes. While quite critical of the overall growth of Macau as having "no aims beyond quick and substantial profits", they recognized the merit of the Urbanism Department team as the few current examples of formal modern architecture in the city.

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[14] The Post Office Bureau (Correios e Telecomunicações de Macau - CTT) was an administrative sector that acted within the provincial and overseas Portuguese government. However, CTT acted as a separate client when it came to residences for their workers, which led to a detachment of these projects from the public housing estates, even when the funding and design development came from the same government team.



[Fig. 71 – Panoramic View of the 70 Flat Block completed in 1966, based on the design of the Resettlement Housing Block. Macau Archives]



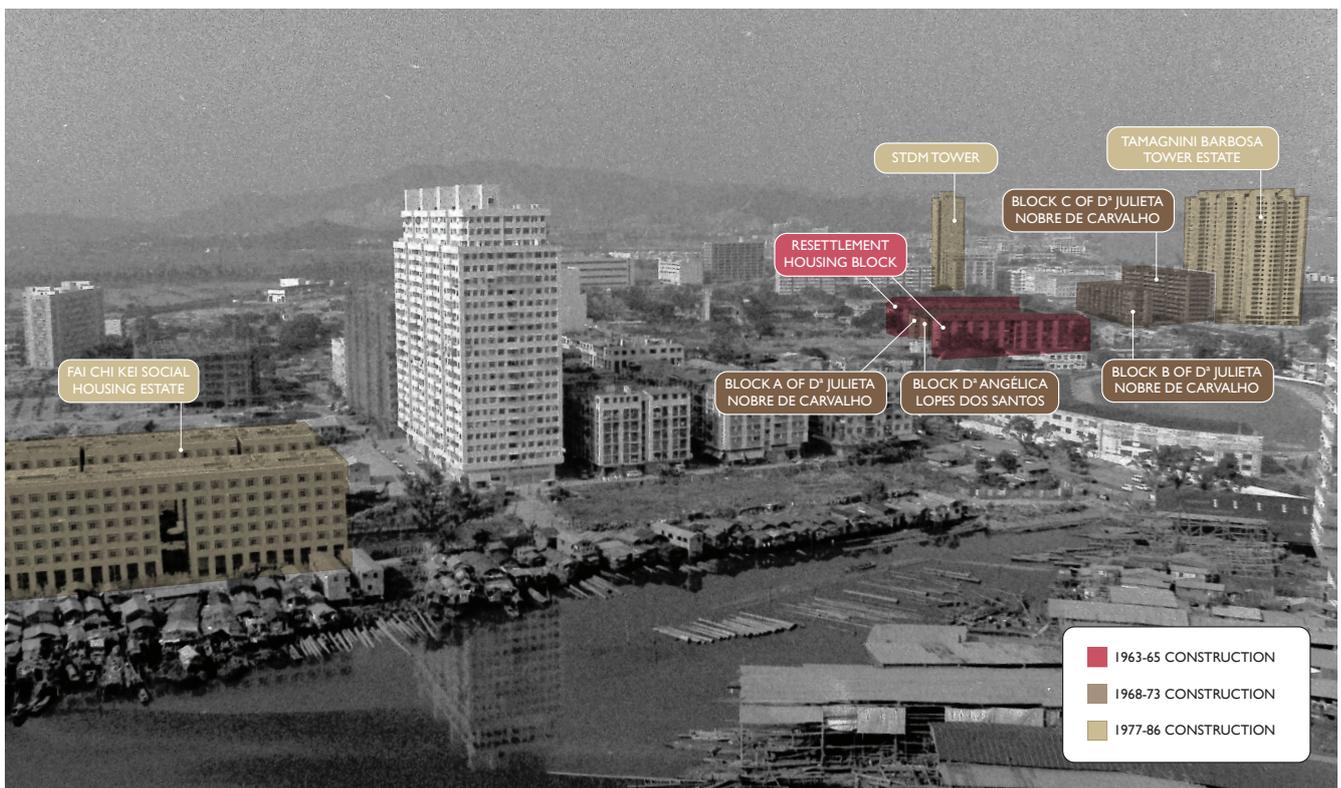
[Fig. 72 – Economic Housing Estate in Triangular Site, 2023. Picture by author]

3.4 Instituto de Habitação and Post-Handover...Popularization of the High-rise Public Housing in Macau

From the 1960s to the 1980s, several blocks of between 5 to 10 levels were constructed, mostly located in the north of the peninsula, five of which following the design developed for the Resettlement Housing Block later discussed in this thesis [Fig.]. Besides the first building of 70 apartments, all subsequent examples are changed by Engineer Aureliano Guterres Jorge according to the needs of the Social Welfare Bureau.

In the 1980s there began the slow transition to high rise public housing estates, beginning with the Tamagnini Barbosa Towers (Arquivo IASM, 1983-88), and later the Economic Housing Estate designed by Manuel Vicente and Vicente Bravo (Leão, 2015). One of the most regarded examples of Public Housing in Macau is the estate that replaces the early 28 de Maio neighborhood, the Fai Chi Kei Housing Estate by Paul Sunmarfu and Manuel Vicente.

Most of the examples from the 1990s and after the 1999 Handover follow the idea of the “public housing estate” made by the Hong Kong Housing Authority, with several towers connected through (semi-)public spaces, having commercial activities in the ground floor, and social welfare facilities in the subsequent floors that comprise a podium. These examples have kept growing in area and height over the years, and in the last 10 years, have mainly been built in reclaimed land due to the lack of existing space. Further projects are currently in construction on the new island to the east of the peninsula.



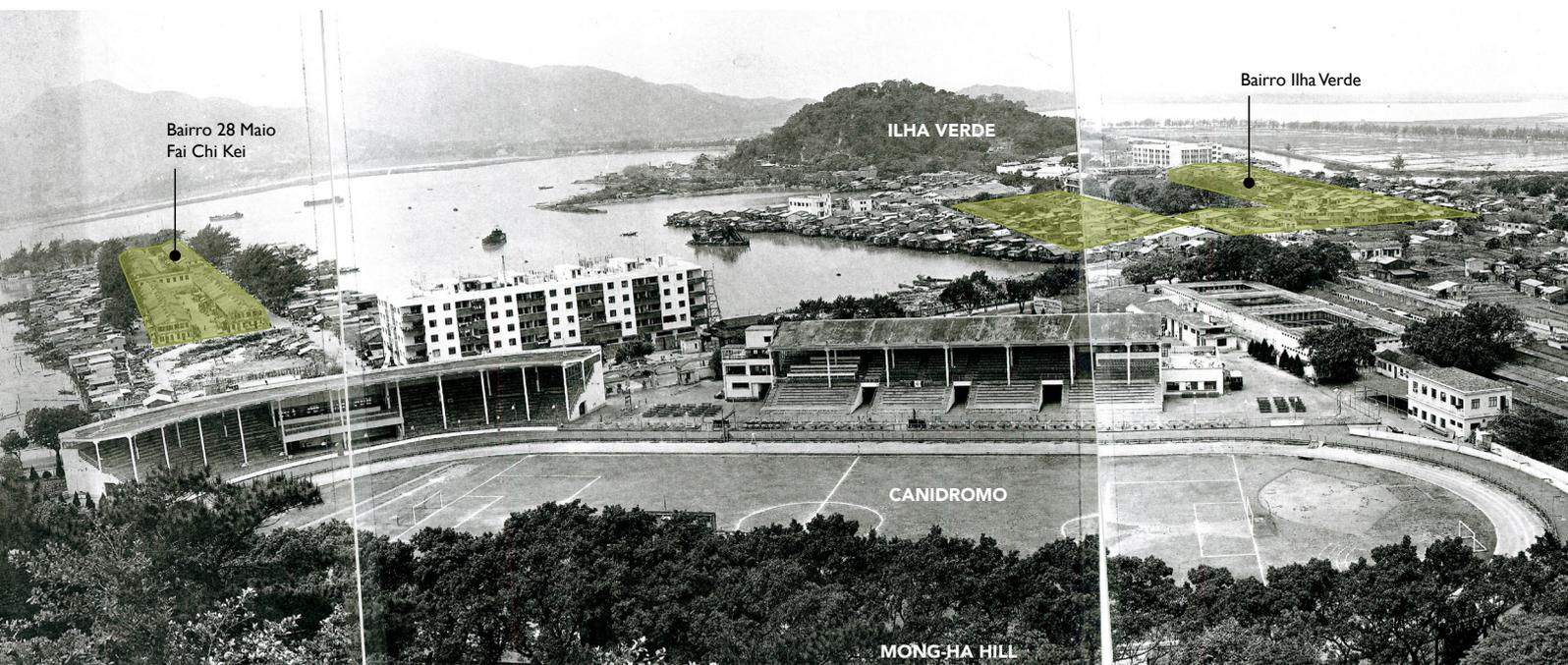
[Fig. 73 – North of Macau Peninsula in the 1970s, with several examples of Public Housing Estates discussed in this thesis. Photography by Lei Chiu Vang from Terence Lei’s personal archive, edited by author]



[Fig. 74 – Succeeding buildings by Eng. Jorge, in between the original and remaining Resettlement Housing Blocks. Screenshot of documentary *Macau 70*, RTP Archive]



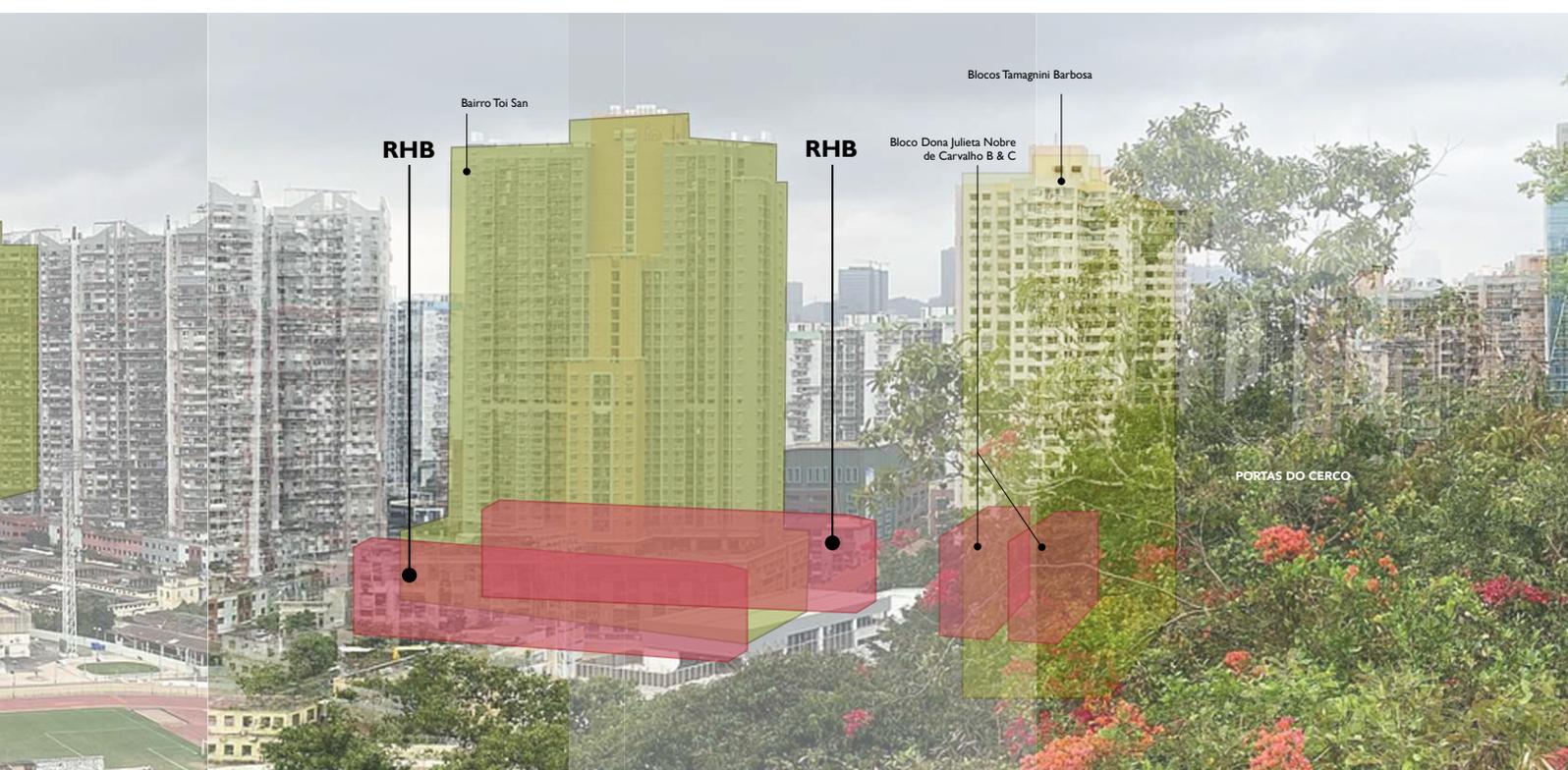
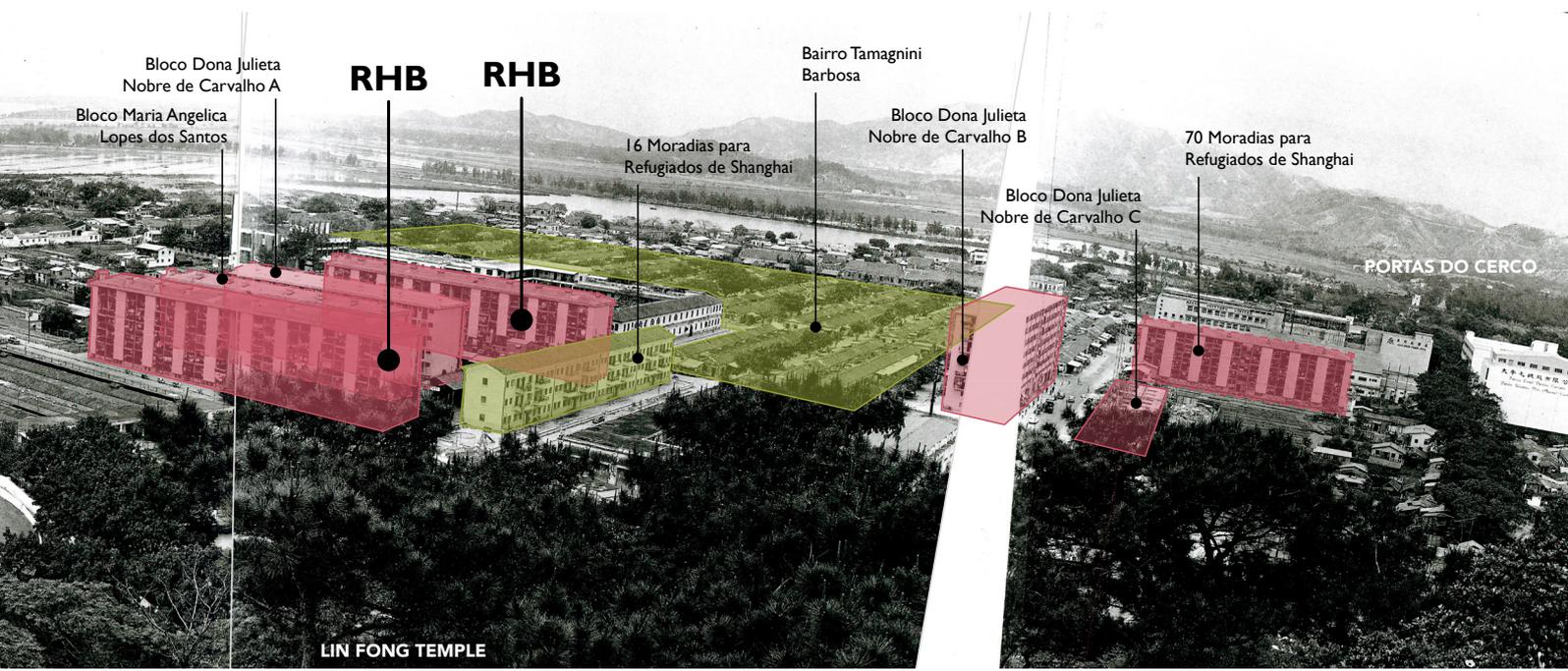
[Fig. 75 – Panoramic View Block C Julieta Nobre de Carvalho in construction. Macau Archives]



[Fig. 76 – Panoramic View of North Macau Peninsula, from Mong Ha Hill. Edited by author, with images from Macau Archives, MO/AM/]



[Fig. 77 – Panoramic View of North of Macau Peninsula, from Mong Ha Hill. Edited by author, using images from Views from the Fortaleza de Mong Há, uploaded on 22 March 2023, by user LN9267 in Wikipedia Commons, https://commons.wikimedia.org/wiki/Category:Views_from_the_Fortaleza_de_Mong_H%C3%A1]



4 PROJECT

As presented, Macau's history and growth in the 20th century is directly connected to public housing efforts that slowly became more efficient in density through the high rise model. But due to the nature of public housing and the continued rising levels of citizens in the city, most of the early examples have been demolished and replaced with newer and updated facilities.

This chapter proposes a conservation project of the Resettlement Housing Block made in 1965, one of the first multi-level blocks within the public housing sector. The focus on this decade in previous chapters was to showcase how this building is the beginning of a standardized design ideology in Macau, fitting within a bubble of formal architecture being done in the city (Leão and Lai, 2020).

Beginning with an understanding of the intentions of the original design, a review of the work of the architects Maria Natália Gomes and Manuel Vicente, and an analysis of the design of the high density block is made. Then, a presentation of the current condition of the selected building, and what is known from government documents, news stories and an in-person assessment. Finally, a presentation of the proposed project, basing the design on both the original design strokes, and how the residents have appropriated it in the last 60 years.

As a low-cost public housing construction, the best option for this Modern Movement example requires renovation efforts more than conservation, but the main objective is to return the building to the current residents. To best capture the intentions this project has, three case studies of restored public housing estates that informed the design are presented.

As Macau's urban fabric has changed drastically since the construction of the Resettlement Housing Block, a survey of the immediate surrounding context is necessary, as well as a review of how the building could be better integrated with the neighborhood.

The main objective of the renovation is to better accommodate the current residents of the building, while adding more to the building, with the understanding of the new context that the Resettlement Housing Block is in.



4.1 Selected Building - Resettlement Housing Block

The Resettlement Housing Block was designed by architects Maria Natália Gomes and Manuel Vicente in 1963, as one of the projects done within the Brigade for Studies, Works and Projects of Development Works.

While the architects worked for the provincial government, most funding came from the charity organizations, as the mindset about public housing in Portugal was mainly towards the middle-class, making this one of the very few examples of low-income public housing across all the Portuguese administrative regions.

This section will give an overview of both the careers of Vicente and Gomes, highlighting their impact in Portuguese architecture and the growth of Macau, as previously touched on in chapters 2 and 3. This was possible through archival material, books about Vicente, the extensive personal library of both architects, and interviews conducted with Gomes and other future collaborators.^[15]

Finally, a review of the current condition of the RHB buildings that still exist, with all of its appropriations and lived-in state, as well as studying the decay that is apparent, and the resident's opinion and objectives.

As the first to be built, the Resettlement Housing Block on Avenue Conselheiro Borja overlooking the Canidrome is the selected building for the intervention, as one of the last two examples of the original design.

[15] The collaborators mentioned are Filomena Vicente, Lourenço Vicente, the author's parents, and João Palla. All worked under Manuel Vicente in Macau in the 1990s, Palla later moving to his Lisbon office. Filomena and Lourenço Vicente had their own atelier, FLV Architects in Lisbon from 1997-2013, employing Maria Natália Gomes in 2006. FLV Architects collaborated with Manuel Vicente's Lisbon Office a few times, such as Tomar 2002, and their final project in Portugal, the D. João II High School in Setúbal.



[Fig. 79 – Maria Natália Gomes and Lourenço Vicente at the Southern Resettlement Housing Block, 2023. Picture by author]

4.1.1 The Architects - Maria Natalia Gomes and Manuel Vicente

The main architects this thesis focuses on are Manuel Vicente (1934-2013) and Maria Natália Gomes (born in 1937). Both were architecture students in Lisbon Superior School of Fine Arts (ESBAL), where they met. They were married from 1961 to 1975, collaborating on projects during and after their divorce.

Manuel Vicente graduated in 1961, and through a colleague from university, found an opportunity to work at the Public Works Department in Goa, India (Vicente, 2012). Maria Natália Gomes, at the time Vicente, followed and informally helped in some projects made by team.^[16] Their projects included the Radio Goa headquarters and studios, and the City Office for Goa Airlines (T.A.I.P.). However, later that year, the Indian annexation of Goa led them to leave the territory.

Back in Lisbon, through the office of Leopoldo de Almeida, they are able to leave the country again, and proceed once again 1962, working for the Urbanism Department in the province of Macau (Vicente, 2012).

Besides the housing projects mentioned in the current and previous chapters, the couple also developed a row of residences in Travessa da Praia Grande (Far East Builder, 1965). Manuel Vicente also developed the Helen Liang Orphanage, considered his first major project in Macau. They returned to Portugal in 1966 for personal reasons, and coincidentally many members of their circle followed due to the impact of the 1-2-3 Incident later that year.^[17]

In 1967, Vicente and Gomes joined the office of architect Raul Chorão Ramalho, with whom they followed the construction of his buildings back in Macau, and proceeded to move to Funchal, Madeira, where several projects of the latter were built.

While Manuel Vicente completed his Master's Degree at University of Pennsylvania in 1969, Maria Natália Gomes followed and finds architecture work within a small atelier, after a brief stint in model-making at Louis Kahn's company, for the infamous unbuilt project of the Palazzo dei Congressi in Venice.

In 1971, Gomes finished her education in Lisbon with her final project, based on her first built project back in Macau, the Resettlement Housing Block that is the protagonist of this thesis. With her diploma, she moved to current Maputo, Mozambique, working with architect José Bruschy, within the Urban Planning Department of the Lourenço Marques (Maputo) City Council (Silva, 2023). This is the third and final office connected to the Overseas Department that she joins in her career. She returned to Lisbon in 1973, returning to the atelier of Ramalho.

[16] Vicente was an official intern at the Urbanism Department in Goa. Gomes claims that she was not an employee, but mentions working on the interior design of the Goa Music Conservatory, which she later visited in the 2010s.

[17] Gomes stopped working officially in 1964 with the birth of their daughter, Joana Vicente Klot. Her descriptions of the Helen Liang Orphanage make me believe she was vaguely a participant in its design process. The design of the chapel within the orphanage was done in collaboration with the artist Maria Emilia Sousa Prates [Fig. 81], wife of their colleague João Ramires Fernandes, to whom they were quite close to. During the 1-2-3 incident, Fernandes and his family left Macau after a negative encounter with the communist protests, along with many others within the Portuguese community. Maria Natália Gomes was pregnant at the time with her son, Lourenço Vicente, and as her midwife moved back to Lisbon, so did Gomes and later Vicente, who was finishing the construction of the orphanage.

Maria Natália Pereira Gomes Machado Vicente — contratada, ao abrigo do artigo 45.º do Estatuto do Funcionalismo Ultramarino, aprovado pelo Decreto n.º 40 708, de 31 de Julho de 1956, e Decreto n.º 44 364, de 25 de Maio de 1962, para a realização de estudos do Plano de Urbanização do Porto Exterior, com direito ao vencimento anual de \$ 10 680,00 (dez mil seiscentas e oitenta patacas), que será pago por duodécimos, acrescido do subsídio diário durante o primeiro mês de estadia na província, à razão de \$ 54,50 (cinquenta e quatro patacas e cinquenta avos) correndo o encargo pela verba do capítulo 12.º, artigo 255.º, divisão I — número segundo, alínea a), terceiro, da tabela de despesa extraordinária do orçamento geral da província para o ano económico de 1962 ou pelas verbas correspondente dos futuros orçamentos.

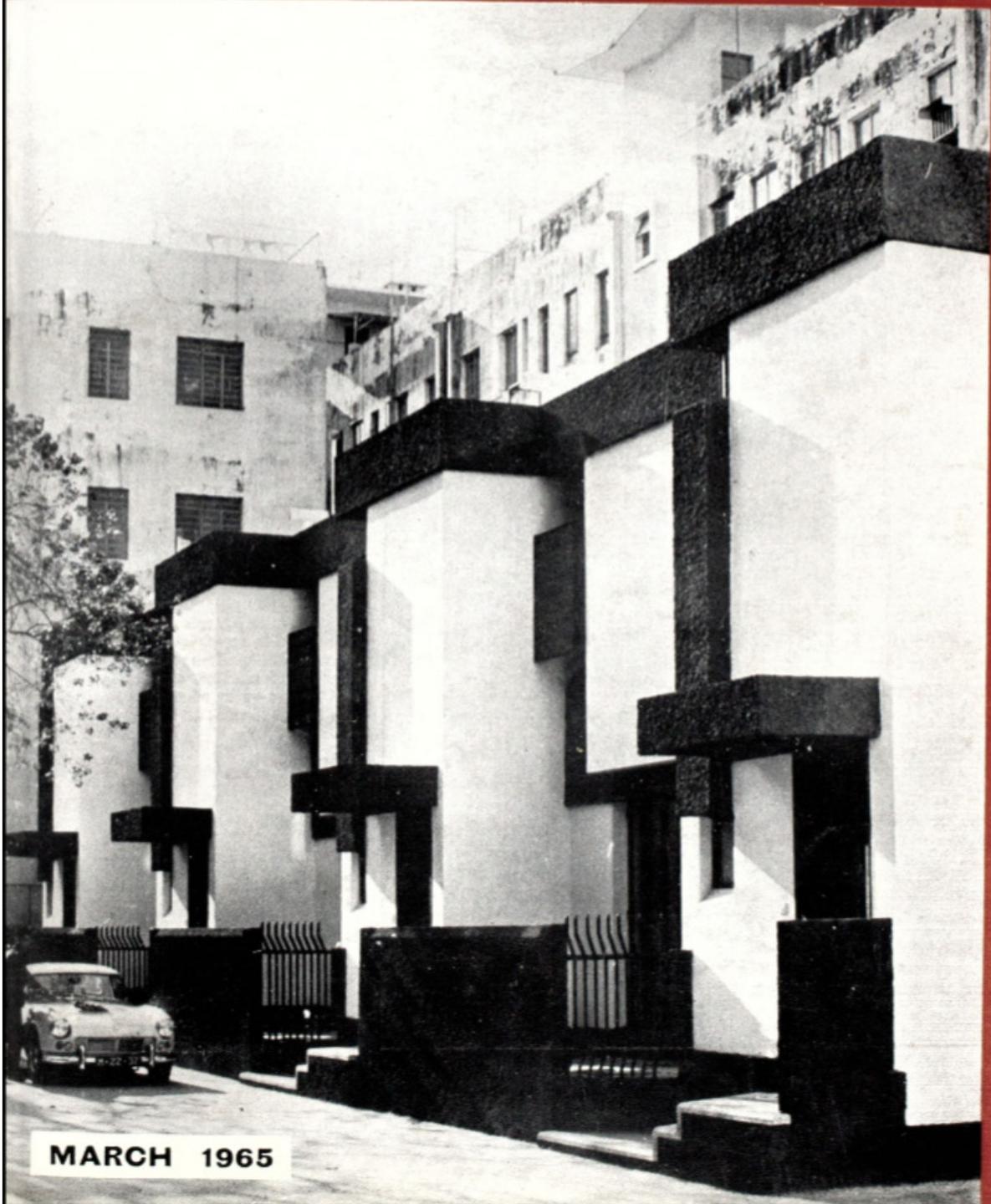
Repartição Provincial dos Serviços de Obras Públicas.
Portos e Transportes em Macau, aos 2 de Fevereiro de 1963.
— O Engenheiro-Chefe dos Serviços, interino, *J. Fernandes Bastos*, capitão de engenharia.

[Fig. 80 — Contract for Maria Natalia Gomes within the Urbanism Department in Macau. In Boletim Oficial do Governo da Provincia de Macau, 5 February 1963]



[Fig. 81 — Maria Natália Gomes and Maria Emilia Prates. From Lourenço Vicente's personal library]

Far East ARCHITECT & BUILDER

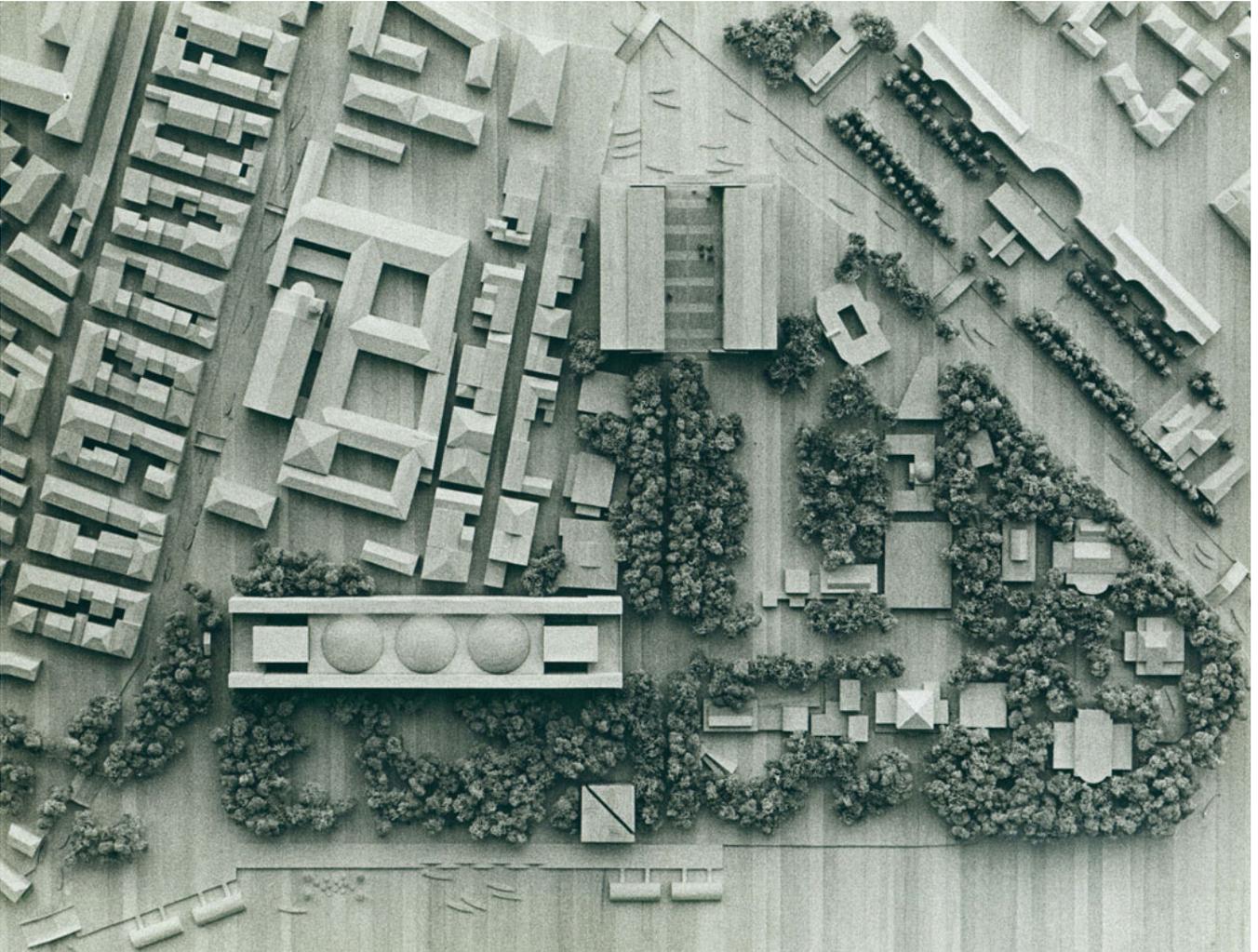


MARCH 1965

[Fig. 82 – Houses in Travessa da Praia Grande, Macau, by Maria Natalia Gomes and Manuel Vicente, 1960s. “Modern two-storey maisonettes design by Natalia and Manuel Vicente for a Macau backstreet” Cover page of *Hong Kong Far East Builder*, issue of March 1965]



[Fig. 83 – 42 houses for staff of Madeira Island Embroiders Association in Funchal Madeira, by Manuel Vicente and Goes Ferreira. From Manuel Vicente portfolio]



[Fig. 84 – Modello di legno, in scala 1:200, dell'isolato con il Palazzo dei Congressi. (Courtesy LIKC Philadelphia)]



[Fig. 85 – Manuel Vicente in his atelier. Picture by João Palla]



[Fig. 86 – Maria Natália Gomes in Manuel Vicente's atelier. Picture by João Palla]



[Fig. 87 – Housing development for urban squatters population, S.A.A.L. (300 apartments). With José Caldeira and Nuno Matos Silva, in Bacalhau/Monte Coxo, Lisboa. From Manuel Vicente portfolio.]

4.1.2 Development, Design and Intentions of the RHB

4.1.2.1 Administrative Context of the RHB - going against the colonial agenda

The Resettlement Housing Block of Ilha Verde is a peculiar case when seen in the Portuguese adjacent context clarified in the first chapter.

Its main purpose was for resettlement of refugees and residents in the informal neighborhoods in the north of the peninsula of Macau, funded by the Social Welfare Bureau of the local government, along with the House of Holy Mercy and international relief organizations, continuing the centuries old identity of charity of the city (Boletim Eclesiástico Da Diocese de Macau, 1964).

This purpose meant that the design had to build the maximum number of residences for the small amount of land area, without the use of an elevator, which limited the building to 5 floors according to the laws of the city. With 600 square meters, 90 single-room apartments made up the block that was first built, and the subsequent one.

Both examples of the original RHB are built within the plan by Leopoldo Almeida of Ilha Verde, following the urban design that the Urbanism Department team was developing.

When first instructed to create housing of low economic level, the Urbanism Department team went to Hong Kong to study the different social housing projects made in the previous decade. This helped them understand the standard of the region, focusing on a more densified design for the new developments, considering the previous projects done in Macau had all been low-rise examples (Vicente, 2013; Gomes, 2024). Both architects mention studying Hong Kong's Housing Authority projects, even if by this time, most were high-rise buildings, unlike what the Resettlement Housing Block could become due to its site pre-requisites.

The Resettlement Housing Block of Ilha Verde can be considered one of the first examples of densified housing in Macau. Inspired by pre-fabricated designs, the cast-in-place reinforced concrete building had a level of repetition that allowed for changes in construction for future projects.

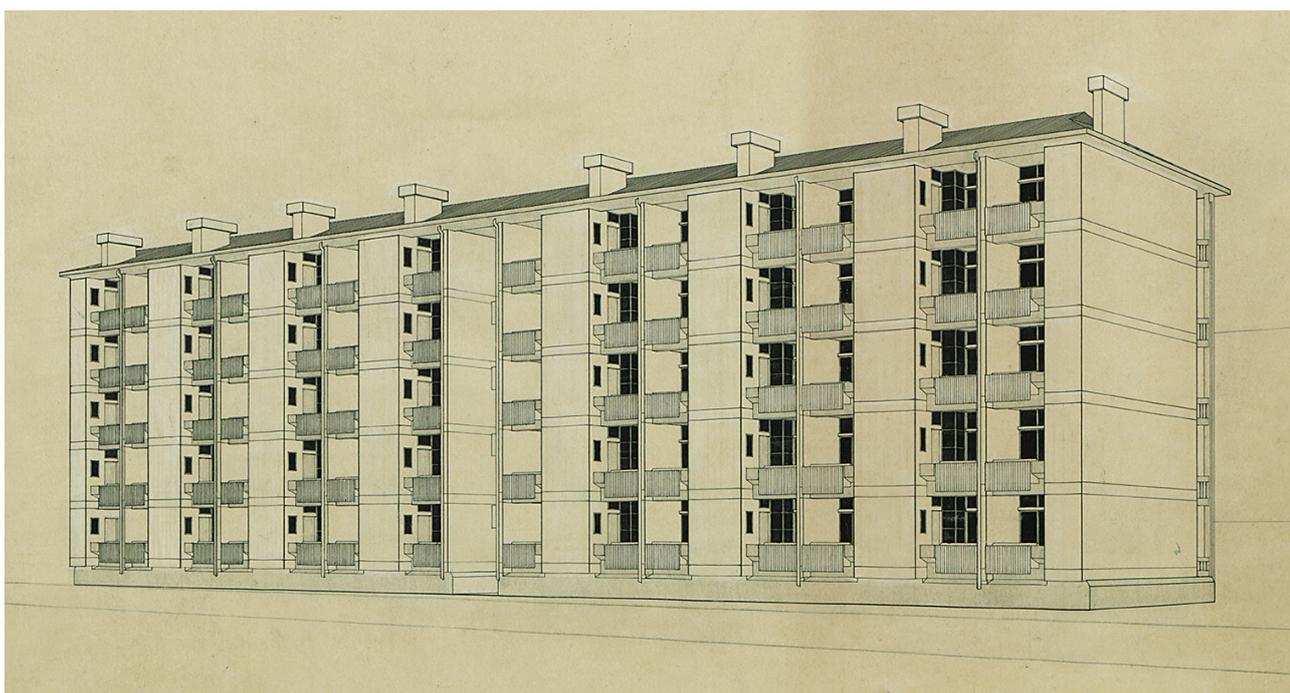
The design of the Resettlement Housing Block was delivered to the Social Welfare Bureau, which was adapted and used in further projects until 1973. The first two 5-storey blocks were constructed with 90 apartments each, which resettled residents of the dense Green Island neighborhood, as well as provided housing to some lower level government workers. Ownership of the apartments was later passed from the public sector to the residents.

In 1966, a third block with this design was made nearby with only 70 apartments, managed by the Social Welfare Bureau. It housed families with visually impaired individuals, and some displaced Portuguese families from Shanghai (Boletim Eclesiástico Da Diocese de Macau, 1966). This block was demolished less than 10 years later.

With RHB design being delivered to the Social Welfare Bureau, and funding arriving from international relief organizations, it allowed for continued developments of this typology of buildings. The design is re-done by Engineer Aureliano Guterres Jorge,

who changed the south facade configuration to a simpler design, and replaced the step within the apartment into a wall, dividing the space and making the apartment a one bedroom. (Documents from the Social Welfare Bureau Archives ,1968). Two of these blocks were built in 1967, D.^a Angélica Lopes dos Santos Building, and in 1970, Block A of D. Julieta Nobre de Carvalho Estate.

In the 1970s, the same engineer reviewed the design and structure again to make taller housing blocks, Block B and C of D. Julieta Nobre de Carvalho Estate, fitting the basic design of the RHB but with more capacity. These blocks also included a commercial level on the ground floor, a welcome development that better suits the urban condition of the city. The original design of the RHB is no longer recognizable from an outside perspective, but letters from Jorge to the Social Welfare Bureau clarify that his buildings are a reinterpretation of the RHB design that belonged to the bureau, which was delivered in 1963 by Maria Natália Gomes and Manuel Vicente.



[Fig. 88 – Perspective from Original Project Drawings, FAUP Archive]

4.1.2.2 Design and Flat Layout

Even with its limitations, the design of the RHB apartments is very user-focused, prioritizing privacy and comfort in a studio apartment setting, while still maintaining a sanitary and climate conscious through its cross-ventilation features.

Maria Natália Gomes developed the apartment design having a holistic view of the project. Considering the plot of land and the common winds of the area, ventilation would happen on the North-South axis, with the main windows of the units all facing South, with a balcony to have the necessary shading the hot and humid climate of Macau demands (Gomes and Vicente, 1963). This coincidentally corresponds to the traditional Chinese designs, with the house oriented South through the main windows, and specifically within the Pearl River Delta, a shaded balcony as a replacement for the tall courtyards traditional houses have in this region.

Vicente contributed more on the bold design strokes of the building. His observation of the city had showcased the regular addition of cages to the windows, which gave more security to residences as well as outdoor storage space. Knowing that the building would probably be similarly appropriated, the blind walls in the southern facade made sure that the original design could not be erased or hidden away, while leaving the balcony open for interpretation to the residents. Then, to change the building with a clear and particular choice, the addition of an opening at the end of each corridor gave the simple side facades more depth, a move highly recognized as his by Gomes.

As the circulation was all gathered at the north of the building in long corridors, Gomes had a concern with the privacy of each dwelling, because the windows facing the corridor were necessary for the ventilation of the units. This led to the step design for each apartment, creating two environments within the studio unit without jeopardizing the open ventilation aspect of the design. The kitchen itself was separated by concrete shelves from the main living area instead of a separate room, with its own connection to the balcony. The balcony led to the bathroom, with its only window facing inwards, allowing for Vicente's blind outer walls. In contrast, between these walls there was the delicate design of the railing, clothes washing water tank and hanging features, all designed by Gomes.

The design was completed in 1963, and is the first fully constructed project by both architects. The initial project required small dwellings for families of 1-3 individuals, which led to the studio apartment with basic amenities that we find today. For bigger families, a different building type of one bedroom apartments was also developed, but was never built. Maria Natália Gomes showcased both of these versions in her final examination project to become an architect.

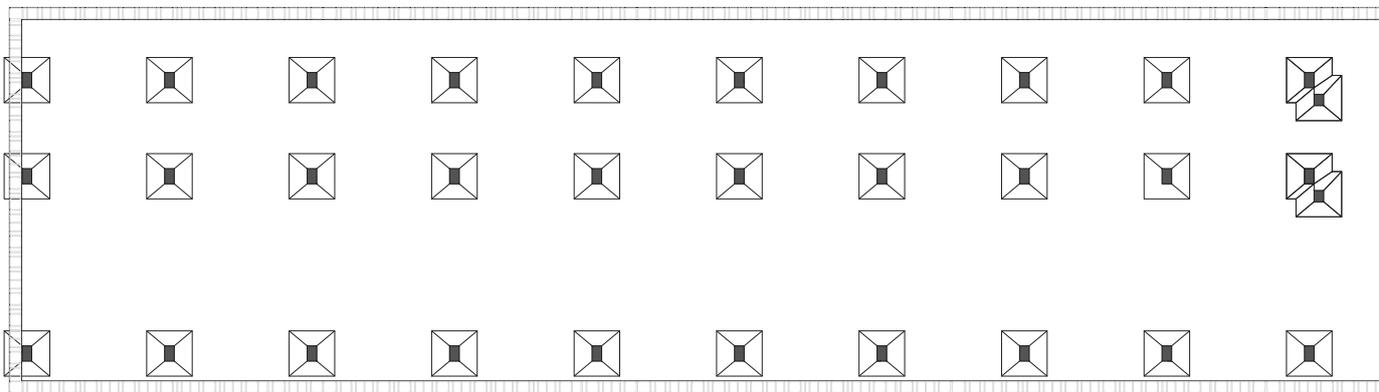
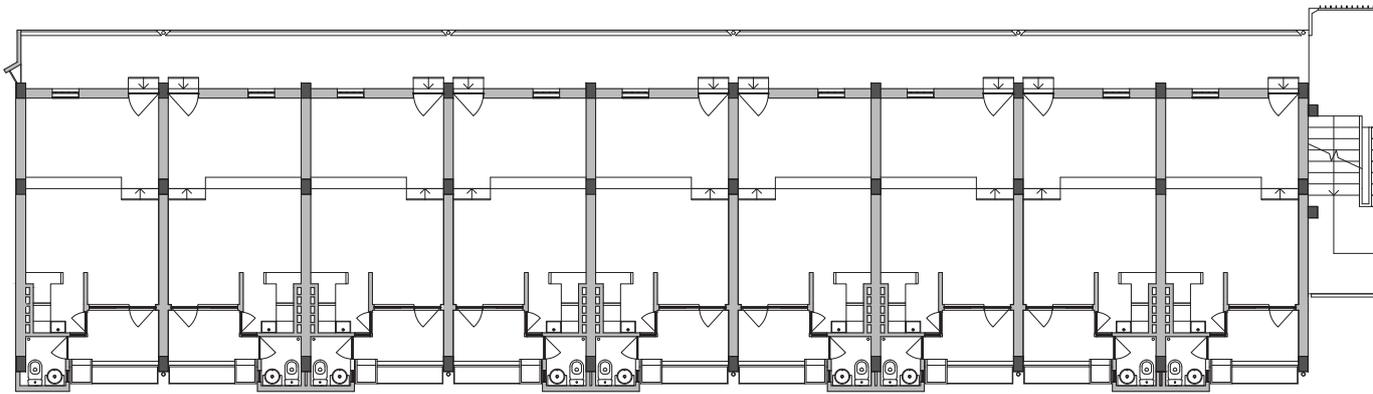
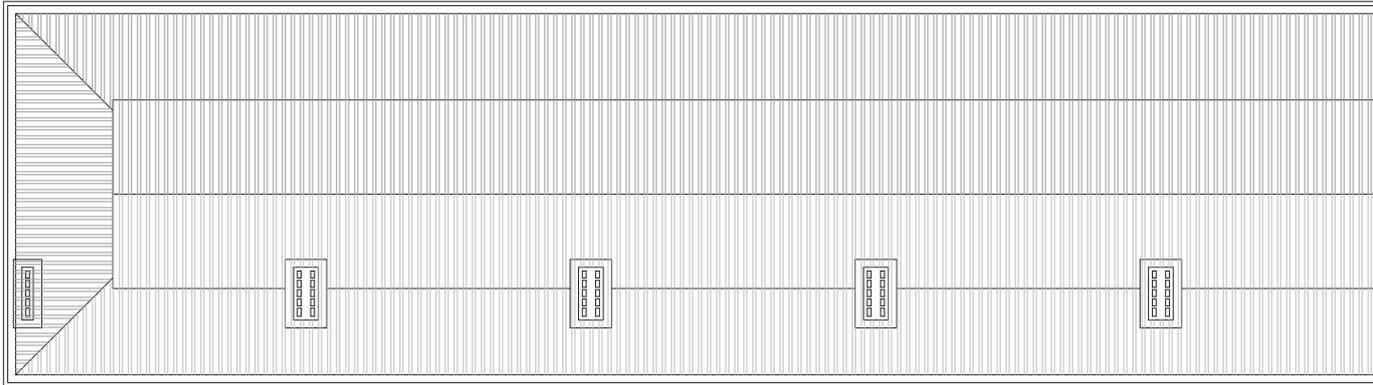
The basic design of the single unit was reused later in Lisbon in one of Manuel Vicente's housing estate projects, in Bairro do Bacalhau, and later in the STDM Building in Macau built in the 1980s, which had both apartment designs developed in the 1960s and an added duplex unit.

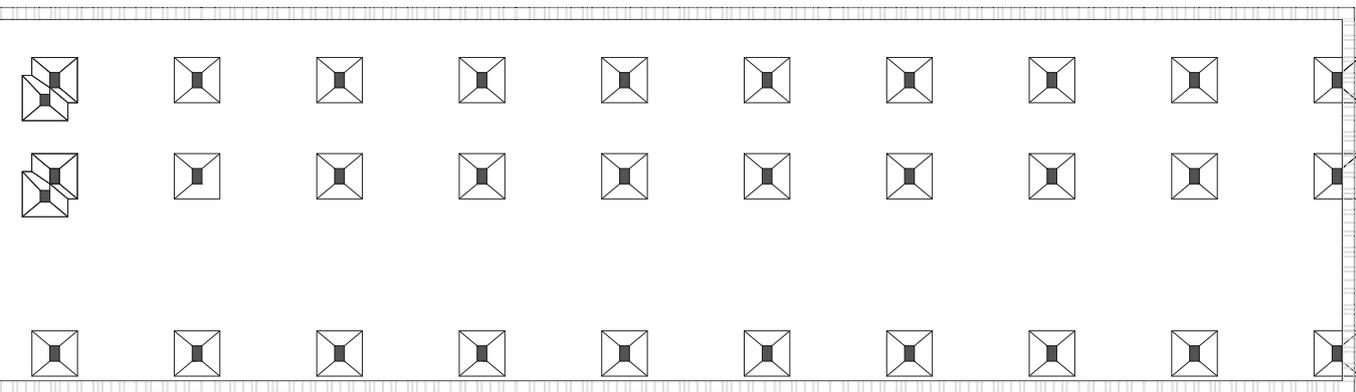
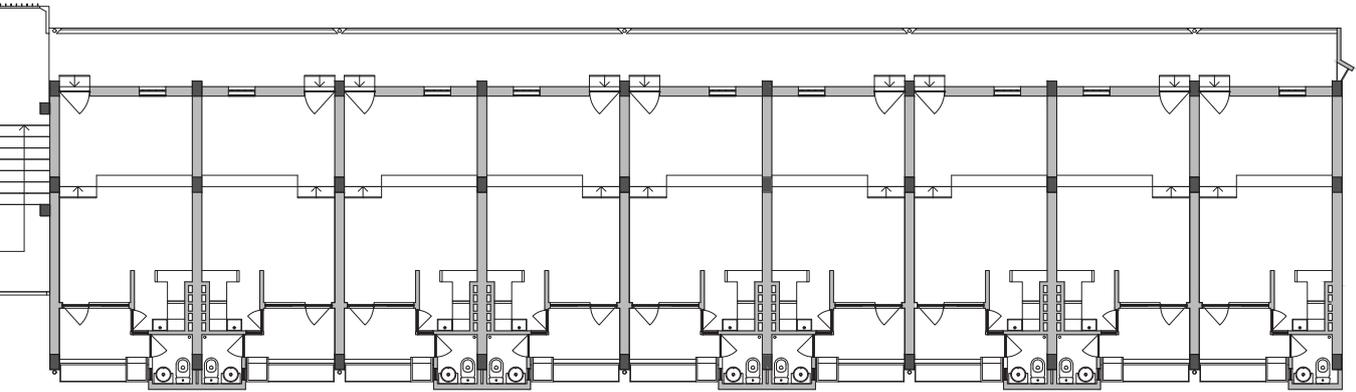
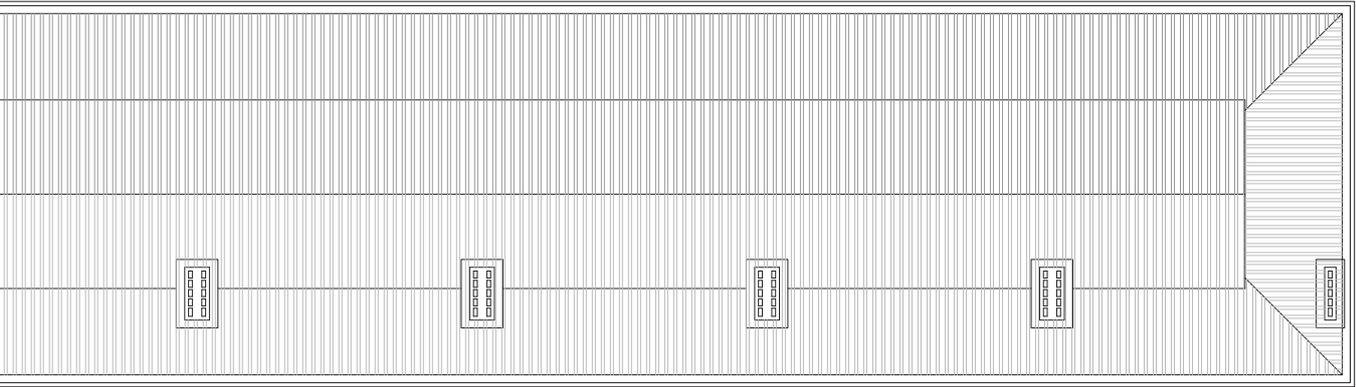


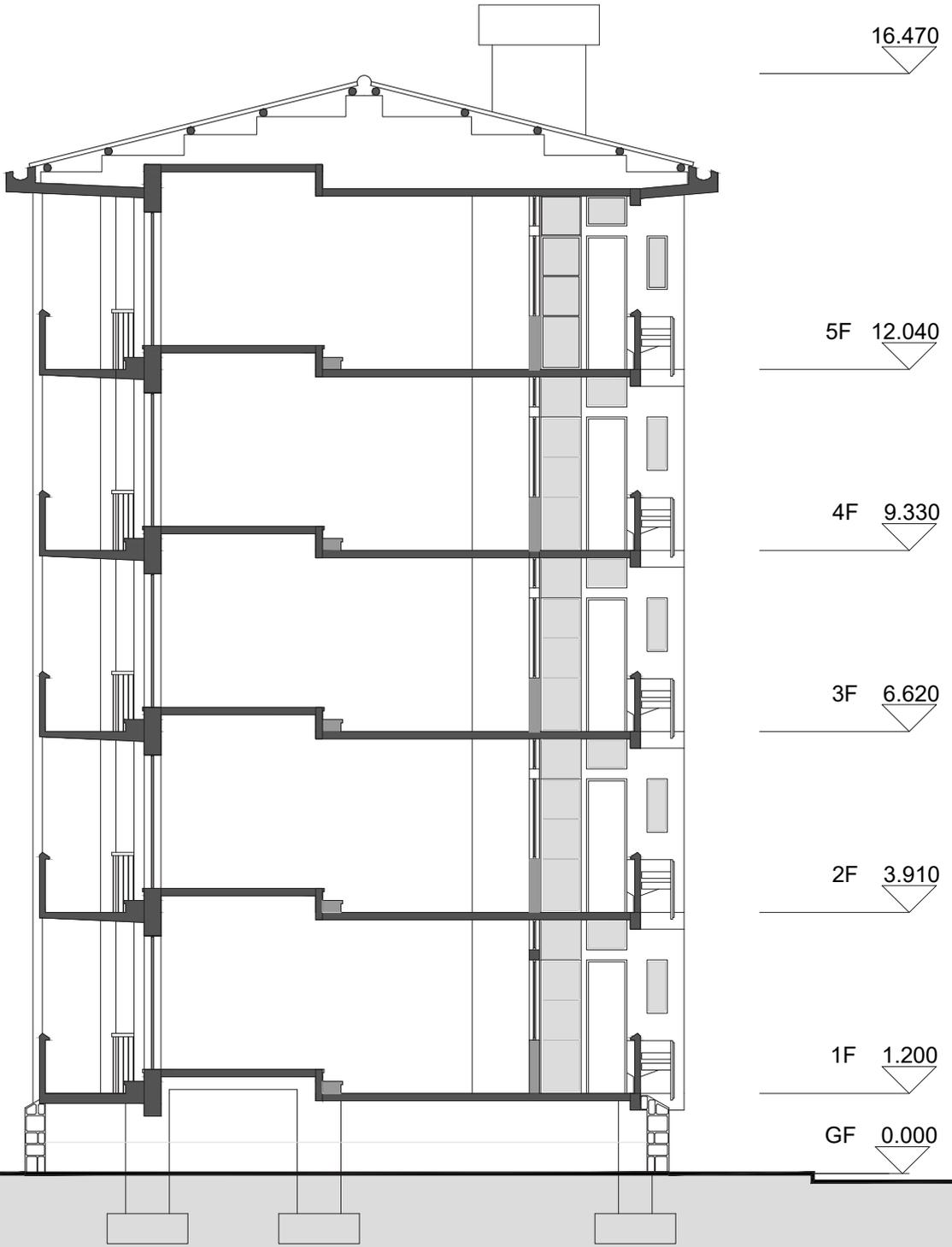
[Fig. 90 – Maria Natália Gomes explaining her design at the RHB, 2024. Picture by author]



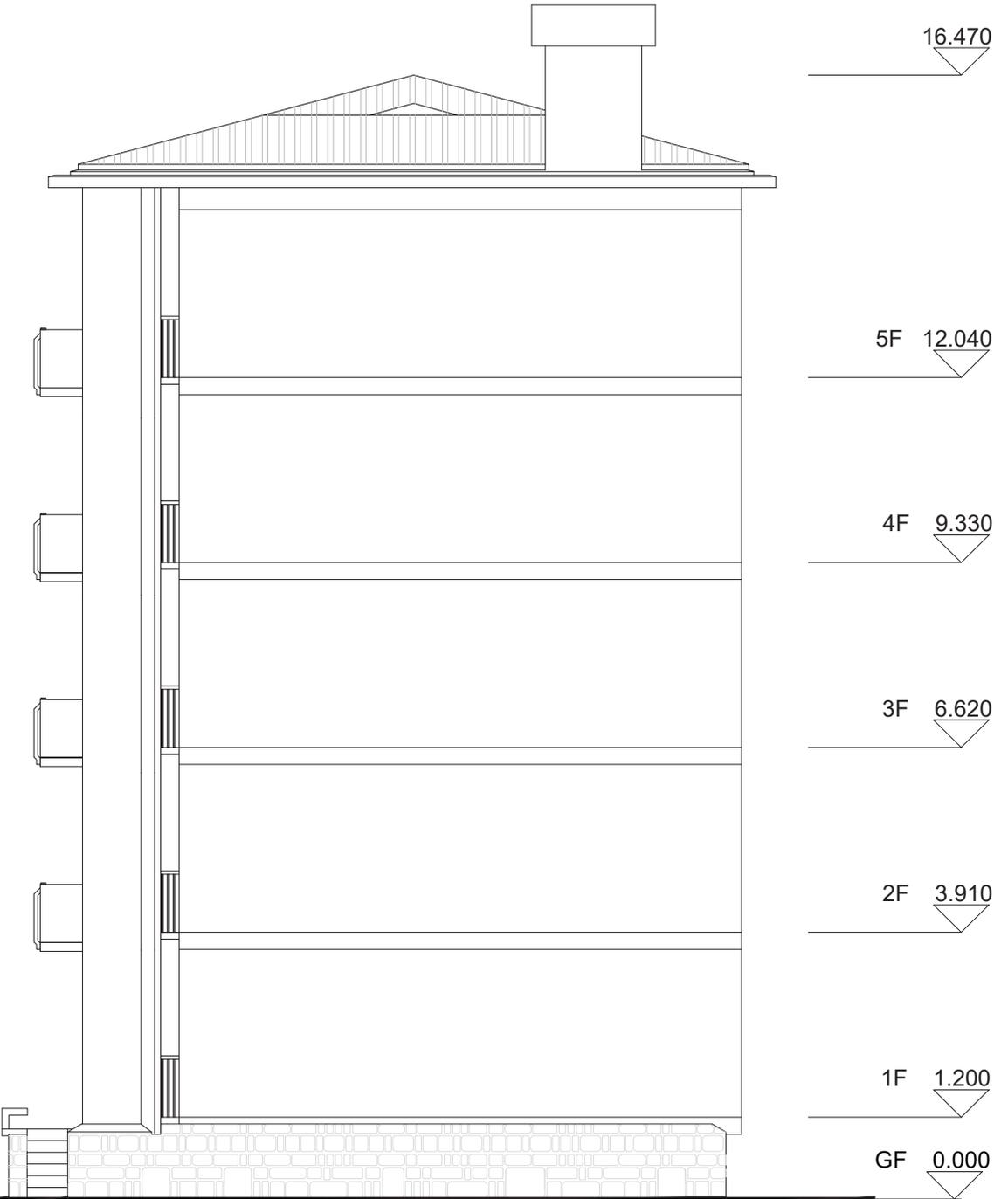
[Fig. 89 – Southern facade of Resettlement Housing Block in 1970. Screenshot of documentary *Macau 70*, RTP Archive]







EARLY PUBLIC HOUSING IN MACAU AND MODERN HERITAGE











4.1.2.3 Analysis

In my perspective, the Resettlement Housing Block becomes special when considering its overall context. Built during a time when the Portuguese government was becoming more controlling of its colonial territories, and the oppressive nature of the dictatorship in Portugal itself, public housing for lower classes was not a priority to the governing bodies throughout the world.

This is one of the reasons why I am focusing on the early works by Manuel Vicente and Maria Natália Gomes in Macau. Besides some private houses in Praia Grande [Fig.], their projects departed from the conventional Portuguese Modernism Housing Estates made in the 1960s, as most of them were for lower income families.

The Resettlement Housing Block was a welfare relief based project, funded by several charities and with a very limited budget. Vicente and Gomes regarded this during their design development, seeking to accommodate the lifestyle of the intended users, and anticipating their possible needs and informal interventions that were common in the city, while still considering the aesthetic of the form they would introduce into the growing urban fabric of the city.

In their own accounts of the project, both architects mention their visit to Hong Kong and their study of Housing Authority projects both completed and in construction in the time of the RHB development. Their interpretation of the Shek Kip Mei Estate and the H block that became standard in the larger city led to concerns of its lack of privacy and shared kitchens and bathrooms as communal facilities.

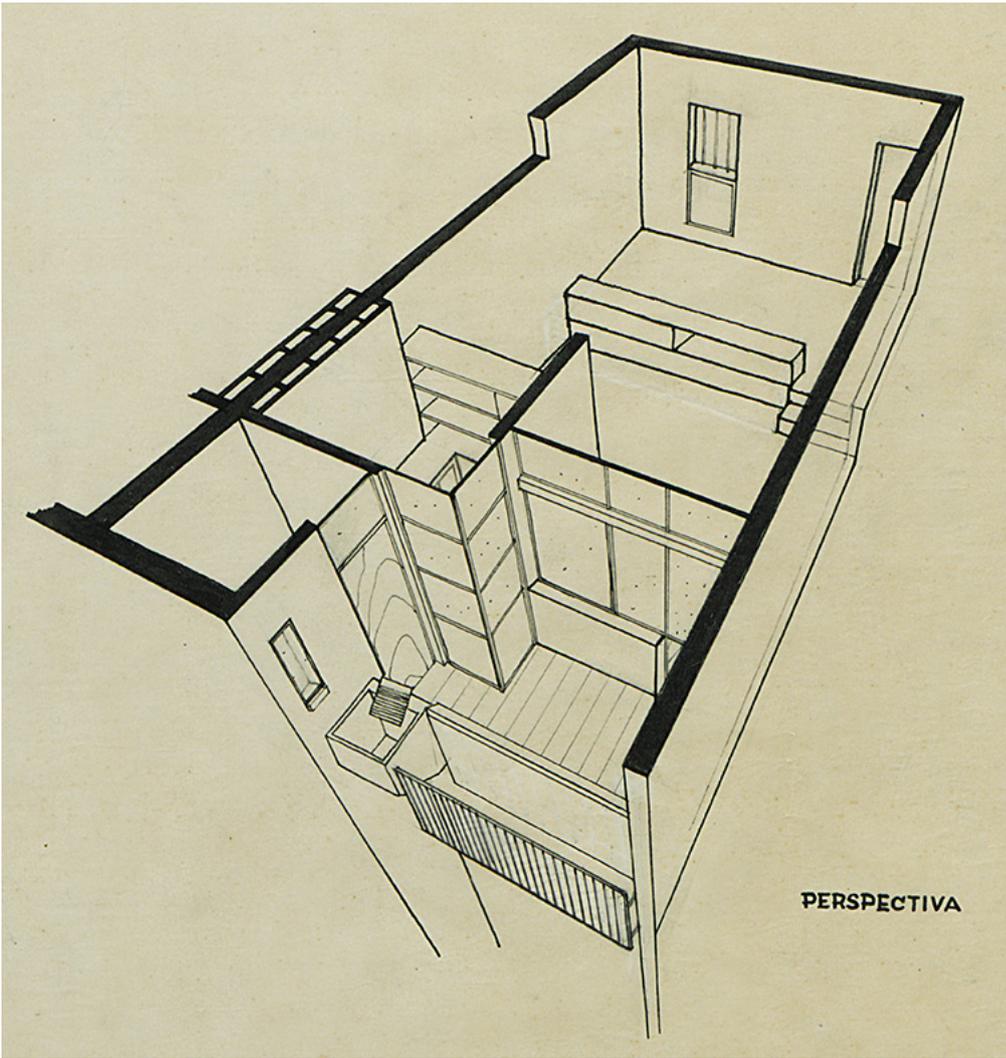
The Resettlement Housing Block apartments have similar plans to some later examples by the Housing Authority, specifically the balcony being an semi-open space leading to the kitchen and bathroom, separate from the only room of the dwelling, with measures of cross ventilation being essential to the layout of the building itself.

From my understanding, unlike the early housing estates of similar size in Hong Kong, the specific elements that Gomes was responsible for make the RHB truly unique. Her concern for the intended residents of the 25 square meter flat showcase how she prioritizes the design for the user, calling it a fundamental part of her work.

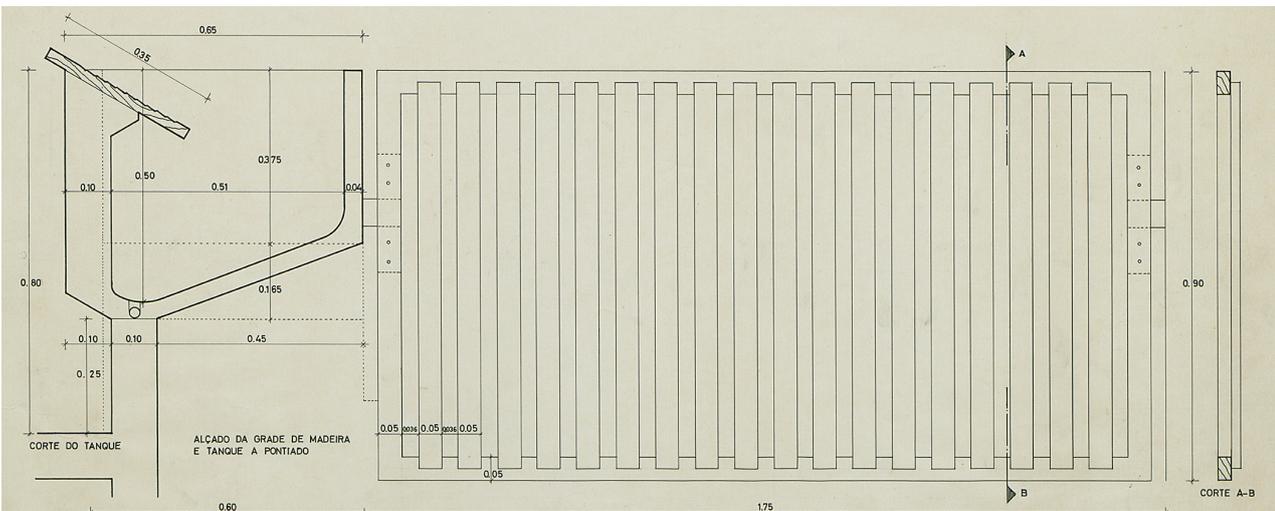
The Resettlement Housing Block is the only project led by Gomes, the only woman architect of the Macau Urbanism Department team in the 1960s. While often mentioned within this group, besides in articles and conversations with architects that worked directly with Gomes and Vicente, her work is rarely highlighted and at times unmentioned when discussing Manuel Vicente.^[19] While a personal subject, I wanted to fully understand why Gomes claims the RHB more than any other work she had done with Vicente, and figure out how the work was divided between themselves.

In the layout of the RHB flat, Gomes made the single room apartment into two separate environments, anticipating the layout of the bedroom and living room, by elevating the entrance area of the apartment, which also allowed for more privacy from the window facing the communal balcony by keeping it higher than line of sight.

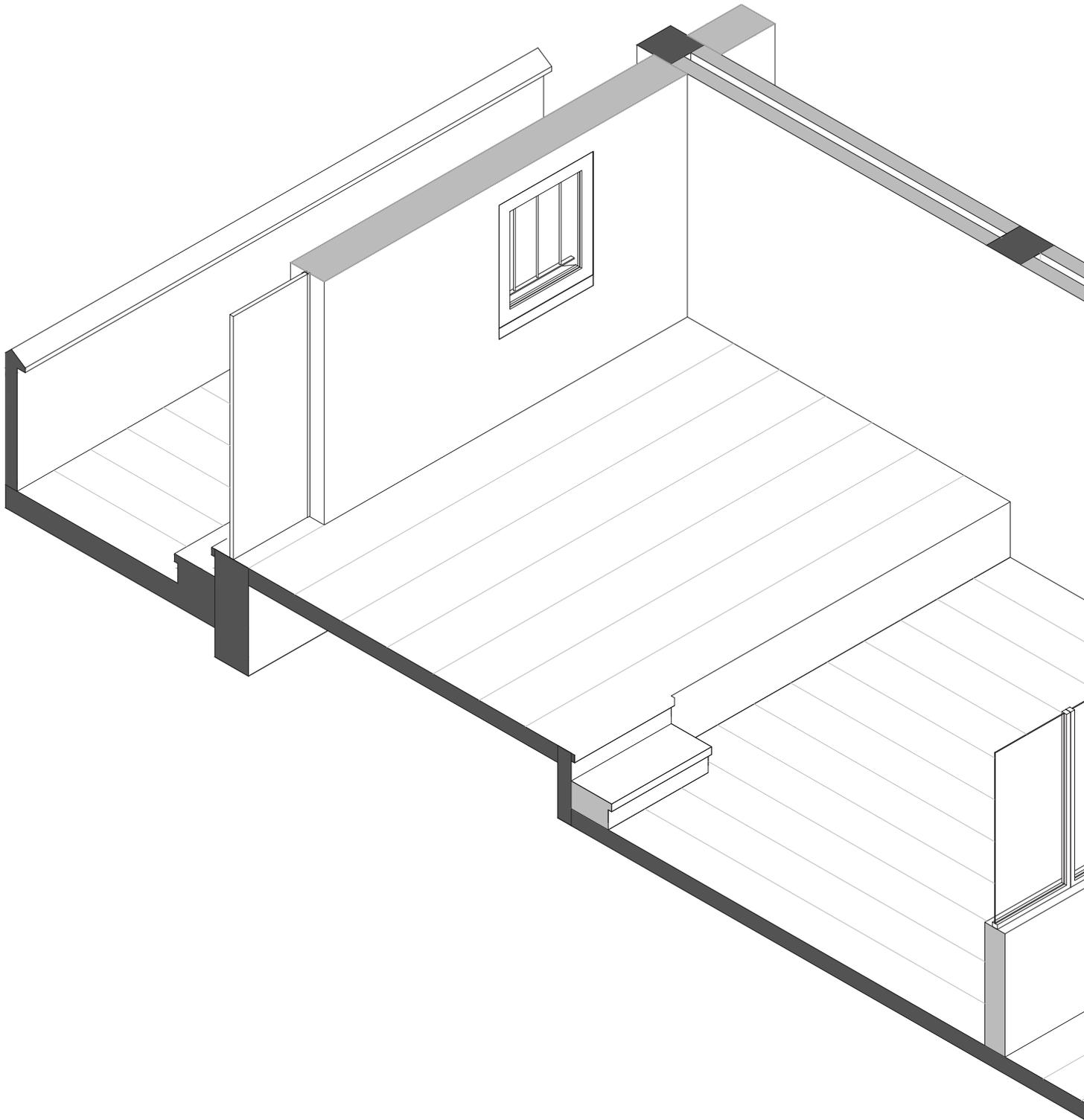
[19] Manuel Vicente always spoke of the RHB project in a collective language, saying “our design” when he reused the flat design in both Lisbon and Macau. Through a conversation with Niccolò Arnaldo Galliano and his recollection of trips with architect José Maneiras, the latter called the RHB “Nataxa’s Blocks”



[Fig. 91 – Perspective of Unit from Original RHB Project Drawings, FAUP Archive]

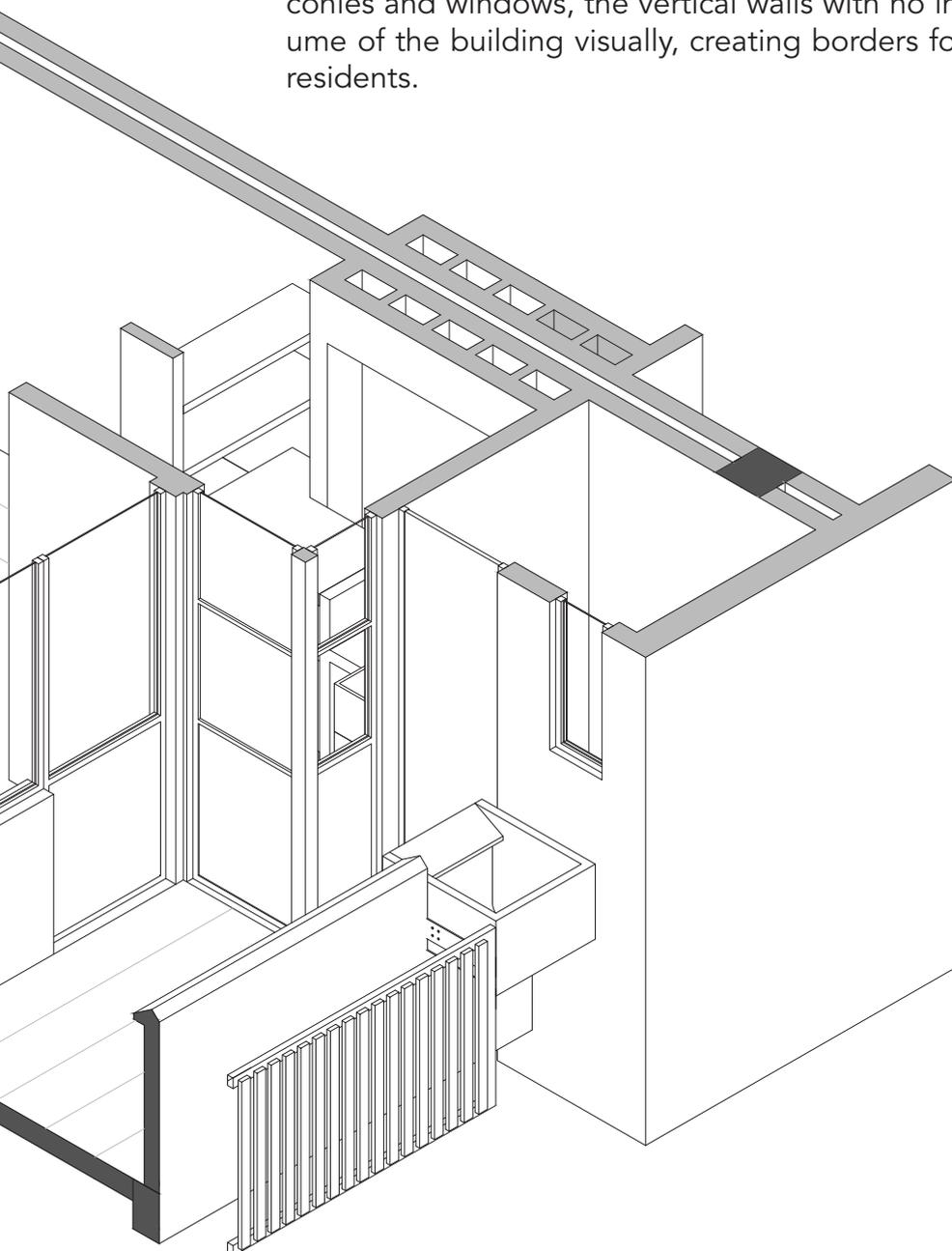


[Fig. 92 – Balcony details from Original RHB Project Drawings, FAUP Archive]



Other furnishing details were included in the design of the apartments, attempting to understand the users, by specifically identifying that most domestic tasks would be done by members of the family rather than a maid, unlike how most Portuguese families of the city and across colonial territories lived. This can be evident in the separation of the kitchen from the living area being shelves rather than a fully walled-in space. This showcases how Maria Natália Gomes has a constant attention to detail and user-focused design, especially when she very fondly mentions her intentions for all the clothes washing components, such as the water tank and wooden shutters to hide drying clothing.

Unlike with other projects done with Manuel Vicente, Maria Natália Gomes does take ownership of the Resettlement Housing Block as an equal collaboration between them, highlighting the idea of the peek-a-boo opening at the end of each corridor as a break in the monotonous design of the building. The blind walls of the southern facade are also a Vicente contribution, as mentioned in his later work for the STDM tower; anticipating the “birdcage” appropriations Macau citizens often built on balconies and windows, the vertical walls with no interruptions would preserve the volume of the building visually, creating borders for the individual interventions of the residents.



4.1.3 RHB Currently

The original two Resettlement Housing Blocks of 90 apartments have survived 60 years since their construction, and have changed with the time since.

In terms of damages, the exposed concrete surfaces of the building have patchworks of different maintenance interventions, sometimes in the middle of Shanghai plaster facades, creating an aged look to the building. From above, the roof is made in more patchwork, this time in corrugated metal of different ages and interventions.

What is most visually apparent however is the appropriation the residents have added to the building. The communal corridors have furniture and clothes around the edges of the circulation, with full enclosures on the final apartments of each side of the buildings. Most doorways have added a barred door, which is very common in the Guangdong region, allowing for more ventilation without sacrificing safety.

On the southern facade, many balconies have been enclosed, sometimes expanded, changing the standard design of facades into a heterogeneous surface. Each flat has its own design of window framing, clearly related to the timing it was built, and each resident's personal aesthetics and/or needs. As air-conditioning technology has become more accessible, the boxes of the system can be seen spread out throughout the facade. The addition of metal-bared components to the balconies is also very apparent, usually built for safety reasons, also allowing for outside storage space, usually used for clothes drying and home plants. These additions are very common in the region, a staple of the streetscape of Macau, known as "birdcages" (Vicente et al.). These are made by the residents of Macau and have been present for generations, in similar materials and patterns according to what is readily available each decade, which I mention in the title of this thesis as "colloquial design".

The constant changing of the urban fabric of facades was anticipated by the architects, which is why I believe the Resettlement Housing Block stands out, as its design and its blind walls in the southern facade between the balconies still make a statement, showcasing the volume of the building (Vicente, 2012)

However, the main reason these buildings still remain even in their damaged state is due to the ownership of the buildings. At some point in between the transition period of public housing being managed by the Social Welfare Bureau and the creation of the Housing Institute, possibly due to the Lease or Resolvable Ownership Regime (Regime de Arrendamento ou de Propriedade Resolúvel) published in 1972, the buildings were transferred from state ownership into that of the residents. Many of the subsequent buildings based on the Resettlement Housing Block design remained in the Housing Institute's ownership, which has led to the demolition of the Angelica Lopes dos Santos Block and the Blocks A, B and C Julieta Nobre de Carvalho (the former two are still standing, but have been vacated and there are plans for their demolition).

The Land and Urban Construction Bureau of the Macau Special Administrative Region of the People's Republic of China has released many documents by the Urban Planning Council, which are closely developing plans for the expected continued expansion of the territory, reassessing many areas of the city to better prepare the city for the reintegration to China in 2049. I was able to access the latest document about the southern Resettlement Housing Block, which made me understand that due to the construction of the high-rise social housing complex (which replaced the Angelica Lopes dos Santos Block and the Block A Julieta Nobre de Carvalho) has limited the height a building can achieve, limiting its real estate interest to private developers.

The southern RHB building is currently collectively owned by the residents. In 2024, the collective of owners of the building made a public announcement of their attempts to deliver a renovation development of the building, that the government has failed to approve of their submissions more than once, due to the several actors involved, the long waiting time and the advanced age of many of the owners. This was corroborated by one of the residents that I met in one of my site visits, who during our short conversation of limited Cantonese, let us know he had lived in the apartment since he was young.

Therefore, this thesis suggests that a renovation project with input from the current residents would be the best way to preserve the building, as one of the oldest public housing projects that remain in the city. By improving the current condition of the building, and working in tandem with the community to achieve their goals and needs, a compromise between renovation and conservation can be reached.





4.2 Project Intentions - Restoring and Protecting the RHB

My aim is to restore the Resettlement Housing Block, keeping the current residents and improving their lives by maintaining the buildings and renovating when necessary.

As a piece of Modern Movement Housing, I believed the best way to tackle this project would be to take inspiration from restoration projects of public housing estates, with a focus on the users, preserving most of the features of the original design, and creating new facilities according to the needs of the community that lives there.

Furthermore, as Macau has embraced its history and mixed cultural identity through architectural heritage, currently having its historical center as a protected UNESCO site, preserving its recent history and Modern Movement artifacts has become a highly discussed topic within the local and Portuguese architecture community. However, due to the lack of obvious novelty like other colonial architecture residences from early 20th century, public housing estates of the modern movement are dismissed by the Special Administrative Region of Macau government, especially considering the growing population density (20,600 inhabitants per square kilometer in 2024, according to the Statistics and Census Service of the SAR Macau).

However, considering the Resettlement Housing Block has remained standing for the past 60 years against all odds, its site currently limited to a low-rise building according to the Urban Planning Council of Macau, it is unable to be replaced to a high-rise development due to other buildings being too close to it. The current residents collectively own the building, and have applied for renovation plans of the building, but have remained in bureaucracy limbo and denials from the Public Works Bureau.

I am proposing the restoration of the southern Resettlement Housing Block, which would be developed as a community based project, prioritizing the needs and wants of the current residents. Taking into account the immediate surrounding context of the site, the only way to add new facilities to the building without compromising its structure would be vertically, replacing the most worn down part of the building, the corrugated metal roof, to communal spaces that the residents could help design. The design I present in this thesis would be one of the possible options, based on the case studies of Restored Modern Housing and the original surroundings of the building itself: introducing urban farming.



[Fig. 93 – RHB from across Avenue Conselheiro Borja, 2026. Picture by Filomena Vicente]

4.2.1 Case Studies of Restored Modern Housing

The Cite du Grand Parc in Bordeaux is an estate made in the early 1960s, much like the Resettlement Housing Block, of similar reinforced concrete construction, using standardized units designed in multi-storey towers. While on a much larger scale to the RHB, its issue of poor maintenance and residents outgrowing their dwellings reflects the issues seen in Macau.

A restoration project of 3 blocks of the Grand Parc was made in 2016 by Lacaton & Vassal, Frederic Druot and Christophe Hutin. The intent was to understand the original design and what worked, updating the common facilities, such as creating more welcoming entrances, replacing elevators, and re-outfitting interior spaces. The main intervention to the buildings was the lightweight volume to one of the facades, extending each apartment with a balcony and winter garden, giving better accommodations to the current residents, with a new space that can bring more nature to urban living.

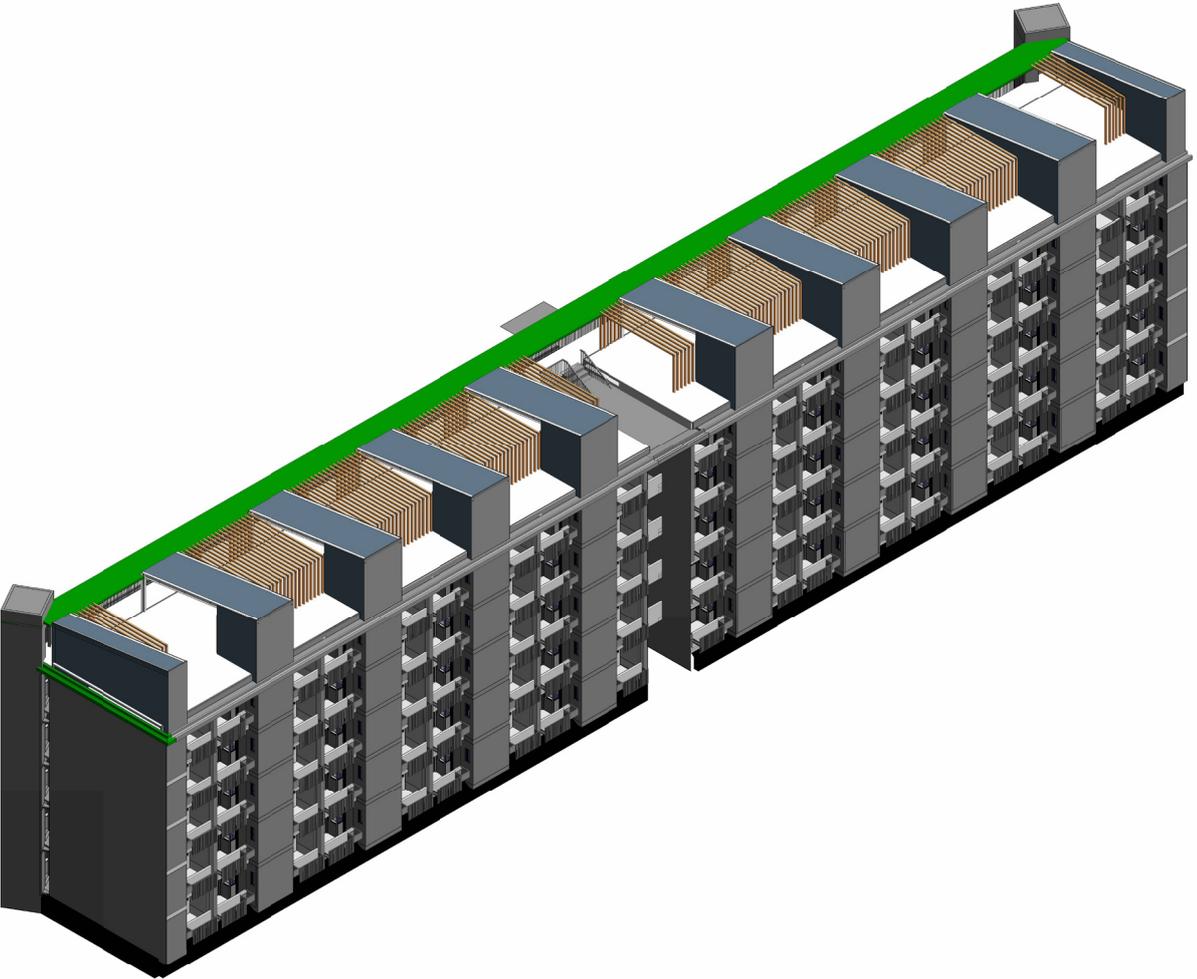
The Wah Ha Estate in Chai Wan, Hong Kong was made in 1959 as housing for workers within nearby industries, developed by the Hong Kong Housing Authority using their commonly used H block design, originally from the Shek Kip Mei Estate. It is one of the last surviving buildings of this typology.

In 2016 a restoration project of this estate took place, converting it into a public housing estate, creating other functions on the ground floor, such as stores, restaurants and a small museum about the building and conservation of local heritage. According to the Hong Kong Housing Authority, sustainability was one of its main objectives, but it was still possible to preserve around 70% of the existing structure, maintaining the classic H shape the building is recognized as. Aware of the denseness of the city, a rooftop garden brought a green space among the industrial neighborhood, achieving a little less than half of its coverage.

Both these projects inspired my design. The separate structure added to the side of Grand Parc Blocks shows a way of giving more to the current residents without taking away from the original layout of the buildings. In the Resettlement Housing Block, the site has a fixed footprint, so my addition would have to go to the top of the building.

To minimize added pressure to the building, a lightweight structure would be built upon the columns of the original structure, making a half covered open space for residents to use.

The proposed function of the new accessible rooftop of the RHB is based on both these projects as well. The new spaces within the apartments in the Grand Parc provided a winter garden and panoramic views to the Bordeaux cityscape. In Wah Ha, the roof and courtyards added greenery to the industrial neighborhood of Chai Wan. Therefore, my design makes a communal open space in the top of the building, with planters and greenery like the case studies, and a panoramic view of the city, as the southern side of the building is not facing another residential tower, but instead the sports field and former canidrome, allowing for an interesting view of the inner-city skyline.



4.2.2 Conservation of Neglected Modern Heritage/Public Housing History

This thesis proposes the conservation of the Resettlement Housing Block as an integral piece of architectural history in Macau, showcasing the beginning the densification of the current densest territory in the world.

Even though Macau values its heritage of mixed cultures and architecture, mid 20th century buildings were not yet high rises in their majority, which lead to most of them being demolished for the limited space the city has. The local community of architects and heritage professionals have called for the protection of certain landmarks of this time, which have had mixed results. The first high-rise residential building with Modern Movement features, the Rainha D. Leonor Tower, by architect José Lei, is highly discussed to become a protected building, but its central location becomes too desirable to developers, and has not had a formal verdict of heritage value. The Casino Estoril by Oseo Acconci was demolished recently, even after years of controversy of its significance and presence in the city, ultimately being replaced by the main Public Library of the Macau Peninsula.

The Resettlement Housing Block fits in this conversation by being located in one of the densest neighborhoods of the city, surrounded by high rise residential towers of public and private housing developments. It is at the epicenter of the area, next to the community facilities named after the first housing development of the territory that was built nearby, the Tamagni Barbosa neighborhood, including the market and sports center, as well as the Sports Field and former Canidrome.

The first two Resettlement Housing Blocks remain due to its ownership being passed to individual residents, making the process of selling or renovation more difficult to reach consensus within the community. As mentioned previously, all later examples of the RHB design that were redone by Engineer Aureliano Guterres Jorge have been or are in the process of being demolished, as they still all remained in the ownership of the Housing Institute, which prioritizes maximum housing opportunities to local citizens rather than architectural value of decaying buildings.

4.2.3 Context Integration

As shown in Chapter 2, the landscape of Macau has changed drastically in the last century. From extensive land reclamation developments, and the vertical growth of the city through high rises since the 1980s, the north area of Macau Peninsula went from a peripheral part of the city, to the densest neighborhood of the territory.

The Resettlement Housing Block is located on the Avenue Conselheiro Borja, originally the Isthmus to Ilha Verde. While built later than the land reclamation that created its site, the RHB predates most if not all of the buildings in its surroundings. It currently sits there, aging, in desperate need of renovation, as per the wishes of the residents. Next to the Public Market and the Sports Field, lined by a bus stop, it is part of the bustling community of the Ilha Verde-Mong Ha-Border Gate neighborhood.

While the new function added to the building's rooftop has its residents as a priority, it would be possible to further use the open space in tandem with the Market's recreational facilities, allowing for further integration within the citizens of the area.



[Fig. 94 – RHB from Mong Ha Hill, 2026. Picture by Filomena Vicente]

4.3 Intervention

To reiterate, the intervention project I believe would be best for the Resettlement Housing Block would be a community-based project; getting direct feedback from the current residents and understanding what could be the best function to add to the single use building.

From the few interactions I had with the residents and public information about the renovation projects they have yet to receive licensing for from the local administration, the main concern is the damages the building has accumulated in the past 60 years.

A careful assessment of the damage in the reinforced concrete structure and previous surface repairs to the building would have to undergo a specific study and research. My archive findings in the University of Porto of the original project materials included the load calculations and re-bar placement drawings by Engineer Alipio Antunes Guedes. I followed these closely in my digital modeling process of the original construction on the Revit software, which provide a full scope of the building for a future restoration project of the building. This would have to include all the potential actors in a real project, which would provide the current missing variables that the Getty Conservation Institute suggests in "Conservation Principles for Concrete of Cultural Significance" (Macdonald and Gonçalves 2020).

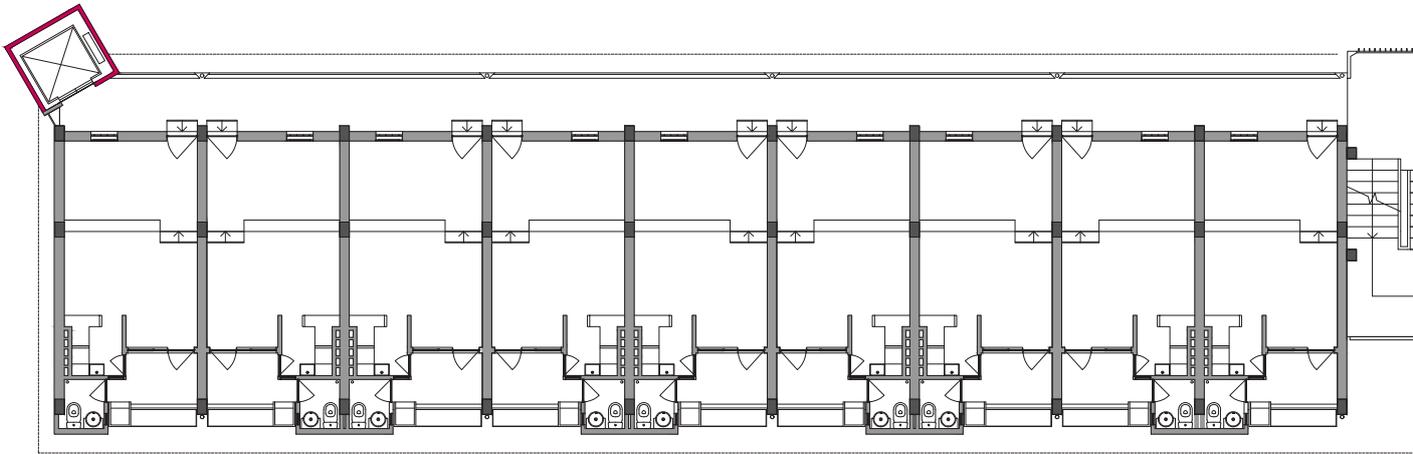
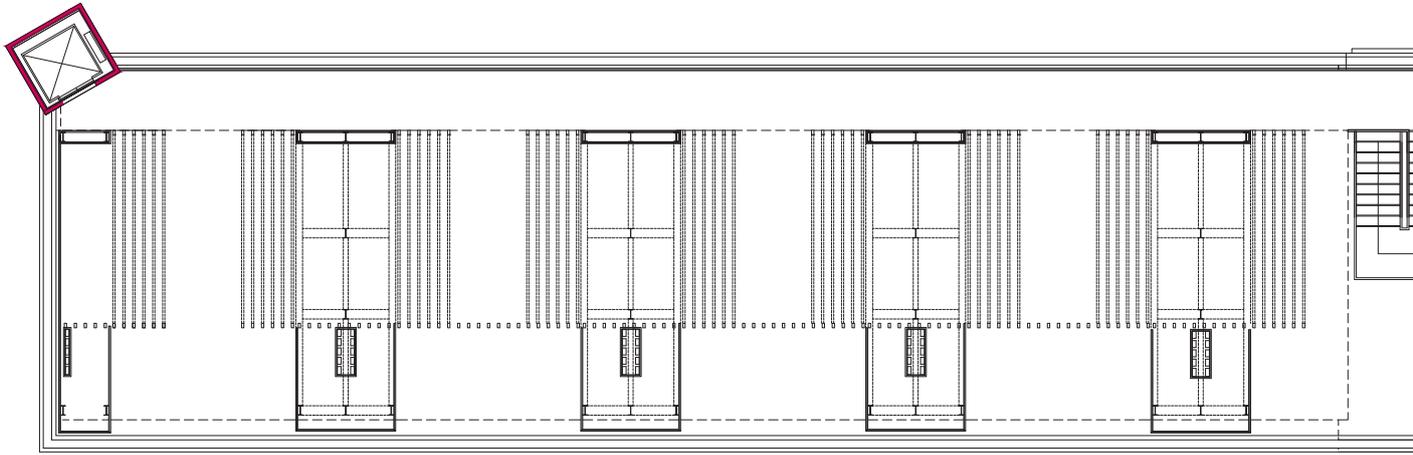
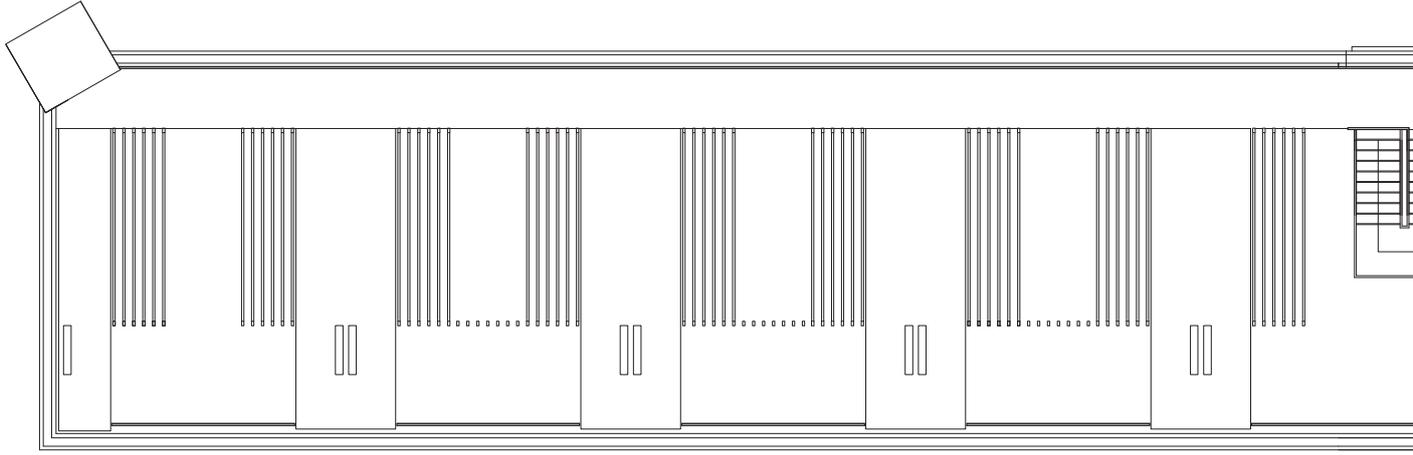
The Resettlement Housing Block is a single function building, unlike most public housing estates in Macau. Recently, the formerly mentioned CTT Duplex Building Manuel Vicente has had a restoration project convert its ground floor into a Public Library, adding a communal function to the previously only residential building. The chosen site of this project has had a similar intervention through an informal transformation in one of the ground floor flats, currently abandoned. However, this completely changes the design of the elevated ground floor of the original construction, so converting all apartments on the lower floor for a collective purpose of individual shops would take too much away from the building. Therefore, the vertical addition to the form becomes the best solution for overall preservation of the urban fabric.

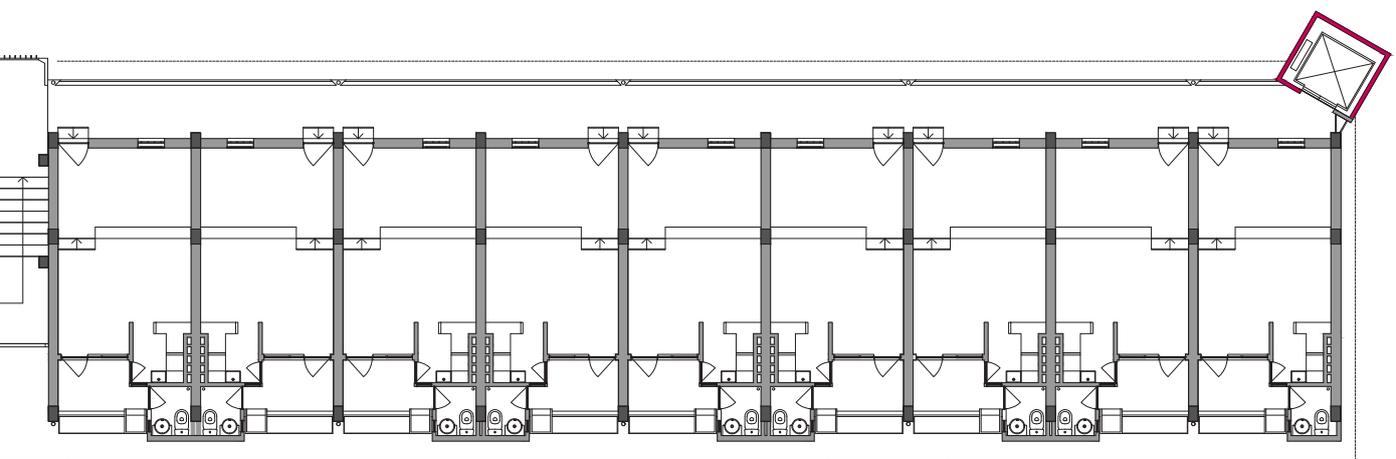
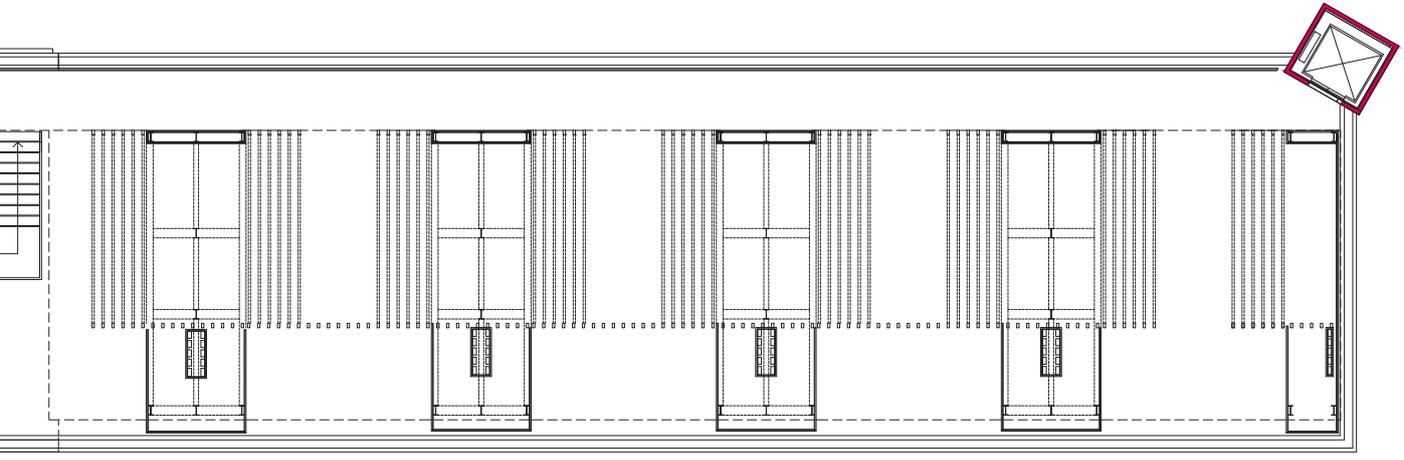
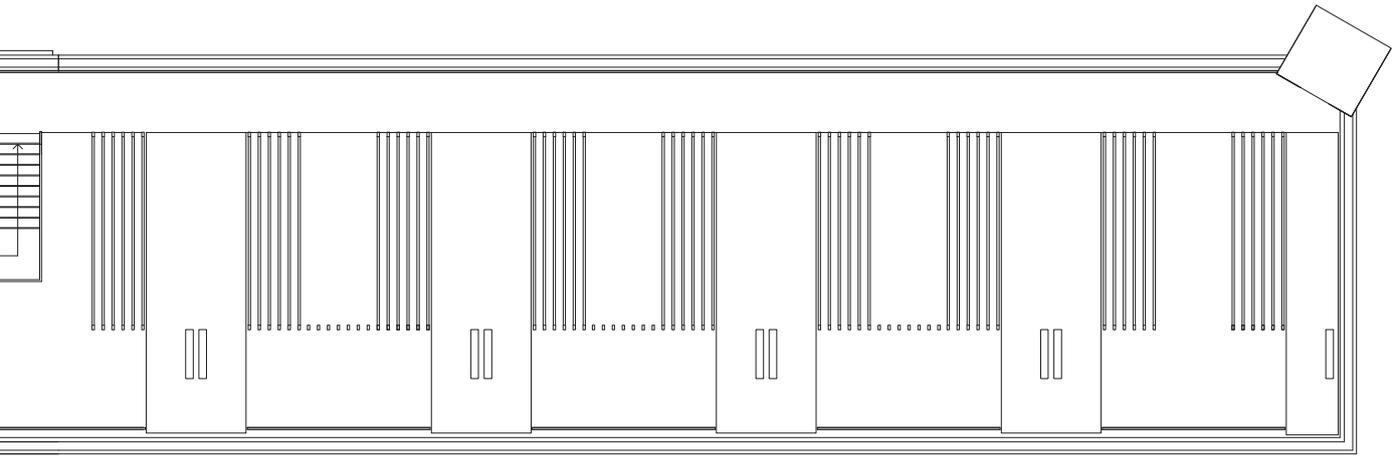
While the facades of the Resettlement Housing Block are in need of a refinishing to better preserve the structure, the additions in the balconies of the southern side of the building have become part of its identity. Reviewing the current "birdcage" and closed varandah typologies, while questioning each families' goals for interior improvement, different versions of updated balconies could be introduced, trying to maintain the most of the original design that still remains (see, the water tank).

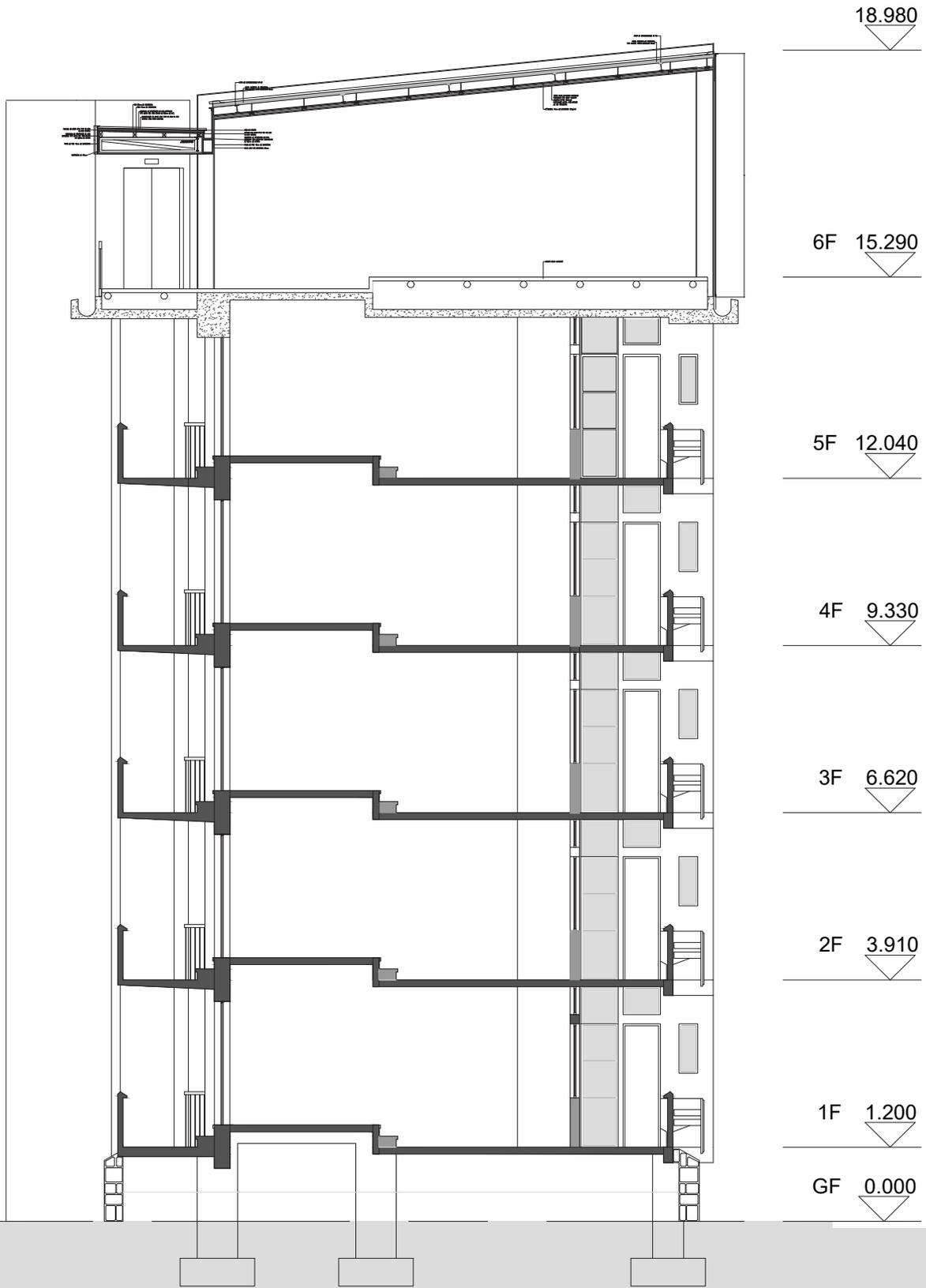
To honor the original design, addition of elevators follow the angle of the peek-a-boo opening at the end of the corridors, improving mobility to the current residents and following the law requirements of a 6 floor building in Macau. The chimneys would be replaced by a lightweight volume that follows the vertical visual of the blind walls of the southern facade, creating a centralized air-conditioning system. In between these volumes, partial shading would be provided for the comfort of users in the high humidity climate, while still having covered spaces in consideration of the heavy rainfall that affects the region during the Monsoon season.



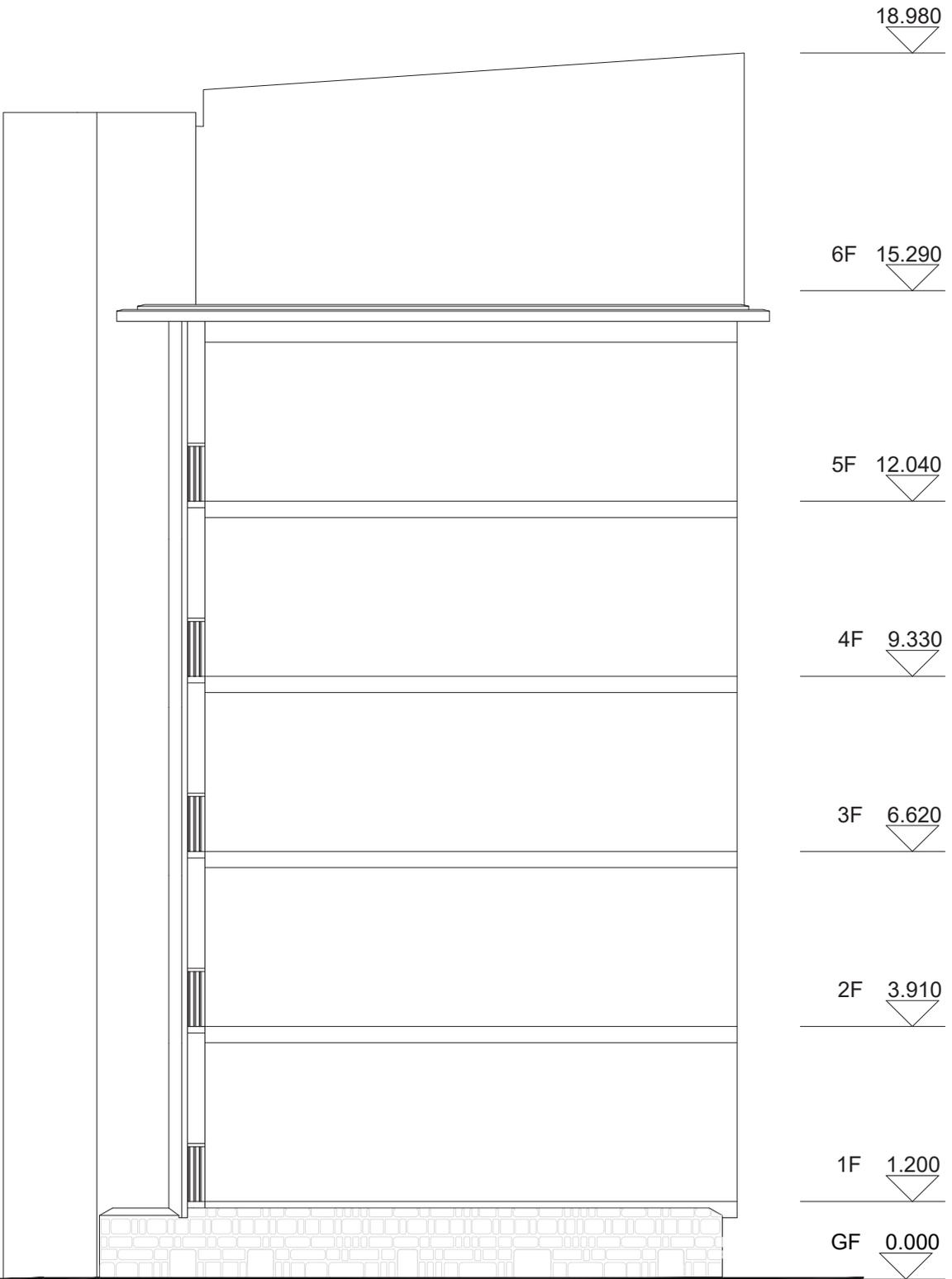
[Fig. 95 – RHB from across Avenue Conselheiro Borja, 2026. Picture by Filomena Vicente]



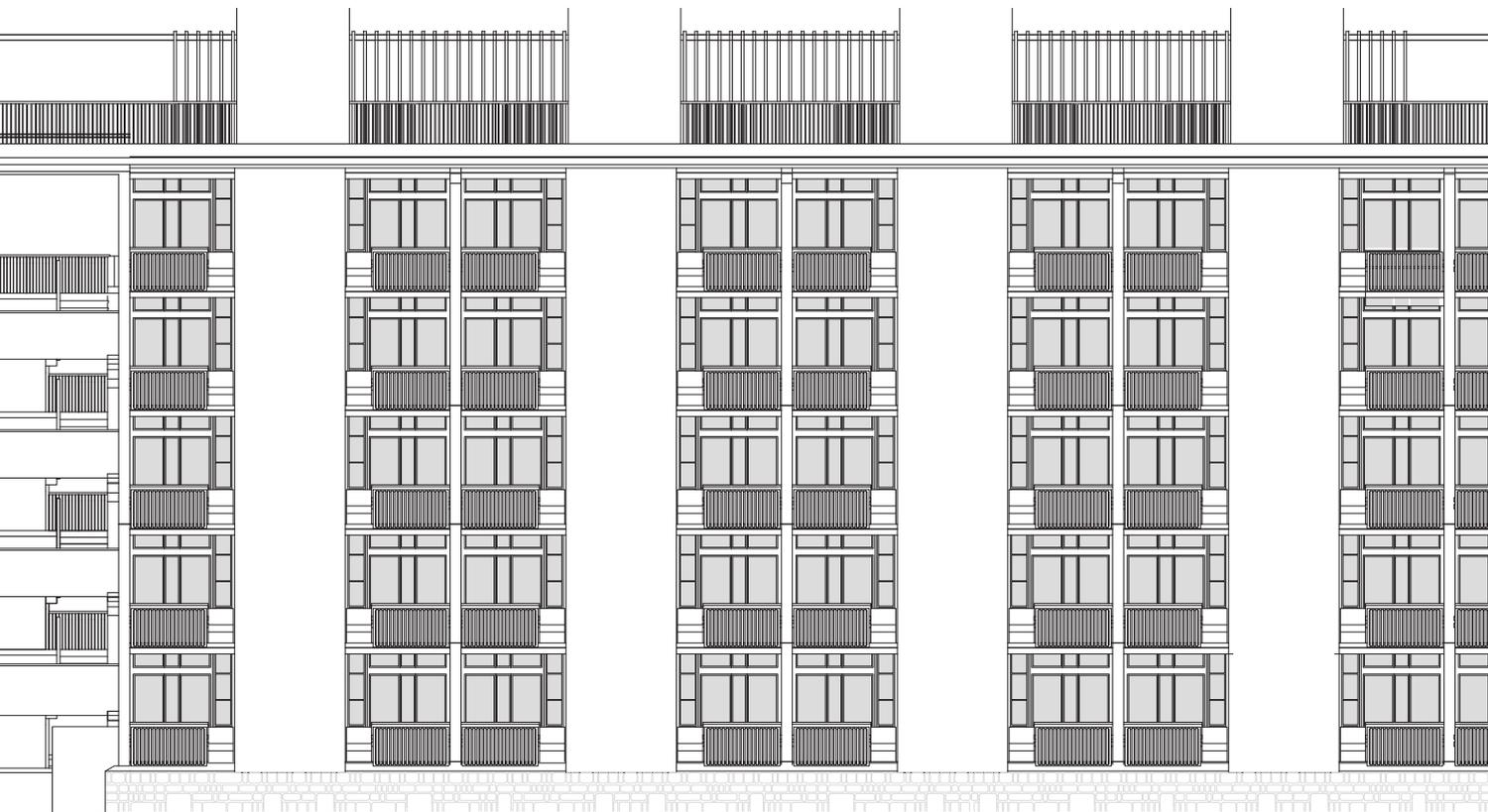




EARLY PUBLIC HOUSING IN MACAU AND MODERN HERITAGE











5 CONCLUSION

Collective housing estates made in the post Second World War period in Portuguese colonial territories were developed through the Overseas Department, and prioritized the Portuguese population in those cities. This has led to the research about pre-Democratic Revolution in Portuguese architecture to mainly focus on middle-class housing (Docomomo, Optimistic Suburbia), with a diverse span of locations within African contexts, and some of the Asian territories belonging to the European country in the time between 1948-74. The efforts being done by Portuguese academics to highlight the less spoken subjects of the dictatorship, has recently focused on the early women architects that practiced as a minority, to which I was further inspired to conduct this research (WomArchStruggle, 2023).

Specifically in the Macau context, the repeated history of charity and welfare relief has shaped how social housing is viewed in the city, which is very different from European contexts. As a valued solution to local citizens, different levels of public housing have accommodated (percentage of population in public housing).

In 1960s Macau, most of the housing projects done by the young architects of the Urbanism Department were for higher income government employees, and included features of the custom middle-class family values that the Portuguese colonial government propagated. This is one of the reasons why I focused on the early works by Manuel Vicente and Maria Natália Gomes in Macau. Besides some private houses in Praia Grande [Fig.], their projects were mainly for lower income families and welfare relief.

I believe the RHB has the potential to become a heritage artifact, through the understanding of the impact it had in Macau, and uncovering the succeeding projects that based themselves with the design of the Gomes and Vicente. With ambitious and grounded choices, we can view the intentions of an architecture student such as Gomes and a newly graduate Vicente had for a project so unlike what was being done in Portuguese adjacent contexts.

As Macau continues the careful balance of Architecture Conservation as a touristic attraction and the history of its local population, renovating the Resettlement Housing Block could be a way to properly showcase how the city was before its exponential growth, while keeping the families remained in this humble building and providing them the improvements to their dwellings they desire.



[Fig. 96 – Maria Natália Gomes in Macau, 1960s. From Lourenço Vicente's personal library]

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