



# Macao Heritage

## A Survey of the City's Traditions and Cultural DNA

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### INTRODUCTION

There is a need for extensive academic research on Macao history in order to understand our heritage, which we can define as our cultural DNA. The incorrect DNA code can lead to building monsters or at least to favouring a misconception of the original person who is in the DNA source. What we are and what our origin is are the keys to protecting and revitalising our heritage, which can easily be abused or even fabricated as a kind of fable. Just to mention a few legends or incorrect interpretation of facts, so frequently repeated in ‘history’ books and internet sites; Macao was a fisherman’s village at the arrival of the Portuguese, or was a gift in recognition of Portuguese contribution to fight the plague of piracy in Guangdong’s waters, or St Paul’s façade was built by the Japanese, or the Portuguese eat young children, or Lilau Square was the place of the first Portuguese settlement, or the Amah temple was built in 1488, etc.

Observing an old building (usually only the façade can be seen) and reading it as only a ‘product’ of the past fashion and not the result of culture and tradition

Macao no século XVIII (detalhe). In Luís Gonzaga Gomes (trad.), *Ou-Mun Kei-Leok*, adaptado de *Aomen Jilüe* 澳門記略 (*Breve Monografia de Macau*), de Yin Guangren 印光任 e Zhang Rulin 張汝霖, 1751.

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that is alive, thus risking the complete adulteration of historic facts as well the fabrication of a Disneyland fable tailored to fit the curiosity of visitors. The true history of Macao can be validated through a joint effort from Portuguese and Chinese scholars to unearth different sources (mostly Chinese and Portuguese), mapping and building the puzzle of the parallel and sometimes intertwining facts, revealing not only the ups and downs, mistakes and achievements of both sites, but also the enormous amount of cultural and social innovation, in the arts and the sciences, that resulted from the Chinese-Portuguese partnership in Macao, the longest and probably the most successful one between China and that most far away European nation. History is not only for ‘telling’ past facts, but principally to learn lessons for the future. In the case of Macao the main lesson is that cooperation and friendship are possible by learning that it was really a ‘bridge too far’ from China to Europe, as was recognised by UNESCO in 2005 when the Historic Centre of Macao was included in the list of World Heritage. There are several examples of this ‘bridge’, not only its buildings, through which we observe the powerful influence of Macao in the development of China and Japan. This is the case with the introduction of modern weapons and the concept of military architecture apparent in medieval keeps that contributed to the typology of the castle town in Japan (Azuchi, Himeji, Osaka, etc), the formation of castle towns, and the end of the feudal period in Japan. In China, at the same time, Portuguese retrofitted cannons captured by the Chinese navy were developed by the Ming army, and a few decades afterwards became a critical factor when Korean and Chinese troops liberated Korea from Japanese occupation (1592-98). During the



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early Qing reign, the descendents of Ming loyalists in Macao played an important role in the liberation war against the Dutch occupation of Taiwan. Late 19<sup>th</sup>-century Protestant protagonists in Macao were the factor of influence in Hong Xiuquan's leadership dream, which drove the founder of the Taiping Revolution.

Buildings alone are useless if man did not operate them in a relationship like that of hardware and software. The first western university established in Macao provided the environment for men like Matteo Ricci and other great scholars who cooperated in the development of Science and Arts in China. Macao's universal contribution, 'World Heritage', can only be understood through Chinese-Portuguese comparative history, in order to understand how the city developed, how building typologies and architectural traditions were created, and how we are continually replicating the traditions in our cultural DNA in order to protect them against the threats of globalisation and the fast urban development of machine-like cities.

THE LONG HISTORICAL JOURNEY TO ASIA

Portuguese oceanic expansion started in 1415 with the conquest of Ceuta, in North Africa, a step further in the long struggle to liberate or re-conquer, 'Reconquest', (Reconquista was the term used) the Mediterranean world from the Arab Muslin invaders, in a race with Castile, the most powerful neighbour, that would unify Spain in 1492 with the fall of Granada, the last Muslim kingdom on the Iberian peninsula. The designed maritime peace treaty at Tordesillas, with a map dividing the world of discoveries between Portugal and Spain, prompted the Portuguese to 'discover' and reach as fast as possible lands and trade opportunities to the East before the coming of their Iberian competitors.

Iberian medieval society was deeply influenced by the German tribes that invaded the Roman Empire in the 5<sup>th</sup> century. Among the barbarian groups, the Western Goths, known as 'Visigoths', subjugated all the Iberian Peninsula, in 507AD making Toledo the capital of the Iberian Peninsula. The Visigoth social organisation and rule is the cornerstone to understanding Portuguese and Spanish medieval society (from 5<sup>th</sup> to 15<sup>th</sup> centuries). The Goths were a military aristocracy speaking a different language and following a different belief (Arianism) from the Latin Hispano-Roman catholic population. Visigoths shaped society but have practically no contribution to

architecture, with only a few stone churches surviving of byzantine influence, apparent in the horseshoe arch and walls of rammed earth formed by clay soil, lime and pebbles known as 'taipa', erected on stone foundations a tradition that is visible in the earlier constructions in Macao. The educated and academic link between the barbarian Visigoth rules and the local population was the Church. The Visigoth military tradition and centuries of struggling with Muslim invaders led to the formation of military orders that shaped the Portuguese expansion.

The Arab influence is apparent in rural areas with new agricultural irrigation methods; the increase of orchards that favoured some economic and social independence from the military overlords, thus giving power and representation to common people. In the Muslim cities, the street is mainly a private lane for the neighbours' living quarters, creating many dead end streets. The main road in a Muslim city links with the main public spaces formed by the city gates and the bazaar market areas.

With the liberation of the peninsula from the Muslim domination, the Iberian feudal system crystallised not only in the social structure—nobility, clergy, and commoners—but also in the architecture and urban forms resulting from different layers of contributions accumulated through the centuries. All these above elements are apparent in the formation of Macao, which was largely modelled from the Portuguese paradigm city: Lisbon, capital of Portugal, linked by a maritime network of cities, spreading from Africa to India and Asia, with a far-reaching influence in Nagasaki in Japan. We can say that Macao and the Portuguese vision of a permanent contact and friendship with China started in Malacca in 1511 when the Portuguese admiral, Alfonso de Albuquerque, conquered that city with the support of Chinese traders and a community isolated from mainland China after the Ming Dynasty decree to self-withdraw from the sea. The Portuguese explorers followed the paths of the great Chinese admiral Zheng He, but in the opposite direction, from West to East, coinciding in many settlements' port cities in Africa, India and Asia. Catholic Christianity was the cement that 'converted' and adopted all the cultural layers mentioned above and, most relevant, allowed people of different social, ethnic and cultural backgrounds to live together in peace for centuries. This was apparent in the construction of many facilities such as universities,

seminaries, hospitals, schools and markets, open to all and giving Macao the brand of 'Christian City' (Cidade do Santo Nome de Deus de Macao). The same catholic 'cement' from Macao was pioneered in promoting the inculturation approach; to adapt the culture, language and arts of local people, thus initiating a very different approach from the 'apartheid' of peoples and culture practiced in other western settlements. The mixing of races through marriage was strongly opposed by the Dutch and British, but widely practiced by the Portuguese since the 16<sup>th</sup> century.

THE PORTUGUESE IN ASIA AND THE FOUNDATION OF MACAO

In 1511 the contribution of Chinese traders to the conquest of the sultanate of Malacca made the Portuguese admiral Alfonso de Albuquerque hopeful of military and trade cooperation with China, such as that which was achieved with Persia (Iran), where the Portuguese conquered and built a base in Ormuz. Albuquerque, like the great admiral Zheng He, saw the importance of establishing a trading base in Malacca

for the trade between East and West. From Malacca, Albuquerque sent an emissary to negotiate cooperation with the Chinese authorities. However, successful negotiations with Chinese authorities only took root in the 1550s after decades of misunderstanding promoted by Malaysian rulers. In 1554<sup>7</sup> Captain Leonel de Sousa reached an agreement with Wang Bo (the *haidao fushi* or *aitao*), the Deputy Superintendent of Maritime Affairs of Guangdong, to rent the Macao peninsula for an annual fee of 500 silver taels. With the perspective that only time can give, this was a good real estate deal considering that there was little value in that piece of empty land but a prospect of business at the gate of the Chinese empire.

The Portuguese society which came to Macao was hierarchical and stratified into three different social layers that produced different buildings typologies: A) Military feudal aristocracy, dominant from the Visigoth period which developed the fortification network; B) religious orders and diocesan clergy who built convents and churches; and C) common people who built dwellings and civil and commercial structures. The difference between the Portuguese settlements overseas and in mainland Portugal was the large number of

Fig. 1. Resende's Map in Bocarro's book to the king with the representation of Portuguese overseas settlements.





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people from other races and cultures, formed either by local citizens or slaves and servants that followed the nobility and soldiers of fortune of the discovery period.

Macao was described by Portuguese navigators as a deserted island, that soon flourished<sup>8</sup> by being the middleman of the new 'Sea Silk Road' linking China and Europe for the first time by sea without the Arabs or other middlemen.

The location of the Portuguese settlements was chosen from the sea; considering the natural geographic conditions, such as the geo-strategic position, like the Greek city-states, in which trade and survival depended on the safety of maritime communications. Pirates and foreign competitors were the common threats.

Before building a permanent settlement the protection came from temporary wooden structures erected near the ships in a safe harbour, preferably with a high ground for observation and to entrench defences easy protected by a small garrison, as was the case of the Camoes Garden in Macao. Once a strong point is secure, it is then possible to develop the city, which in the medieval and renaissance culture meant a walled city. The city was built in a hurry, in less than three decades, making it a faithful example of implanting a Mediterranean model of a medieval-renaissance city in a Chinese environment. Father Gregorio Gonçalves, one of the first settlers (Boxer, 1997) who arrived in the first decades of Macao's foundation, mentions that there were already 500 houses in 1570:

'...a very large settlement with three churches and a hospital for the poor, and house of the Santa Misericórdia, which nowadays form a settlement of over five thousand Christian souls'.

Earlier maps, like Resende's of 1635 (Fig. 1), show the layout of Macao within walls, denominated a Christian City in China, separated by a rice field from the Chinese village of Mong Ha and the isthmus to the border's gate.

Macao's skyline and layout had many common elements with a seashore Mediterranean town at the foot of the hills. Institutional buildings like churches and the fortress are prominent on high ground. The main street sneaks near to the ridge of the hills.

The Christian city was contained within walls, separated by rice fields from the Chinese village of Mong Ha. Within the city walls, in the natural land reclamations of the inner harbour that accumulated silt from the river, were located industries, shops and storage related to maritime trade, which were progressively

invaded by 'emigrants' from Mainland China who developed their shops and industries, centred in the Bazaar at the frontier of the Christian city.

## EARLIER TYPOLOGIES AND CITY ORGANISATION

The Christian city was structured along the 'Rua Direita', which literally means 'right', 'straight' or 'direct' street. It was directed towards a central place or institutional building, like the cathedral, then connected with the nearby Dominican monastery and further north with the imposing Jesuit St Paul College, the first university in Asia. This long route is punctuated by piazzas such as the Cathedral and Senate squares.

Most early western buildings in Macao were simplified versions of traditional Portuguese medieval 'plain architecture' so characteristic in the Mediterranean, with one or two storey buildings, with no balconies or arches, and whitewashed facades covered with a tiled roof. Institutional buildings like churches, mansions of the wealthy or municipal buildings were the exception. The 'plain' architecture progressively faded away during the late 19<sup>th</sup> and early 20<sup>th</sup> century under the influence of other 'tropical' foreign colonies (British India and Spain's Manila).

The monasteries are the most recognisable Portuguese typology in Macao, some having been erected before a defensive network of forts and walls was developed. The evolution of the Portuguese rulers from a medieval Catholic society to a dictatorship (and anti-Catholic) absolutist government led to the expulsion of friars and priests, first emptying the convents, which suffered some ruin, then filling them with military or police units. This was the fate of St Paul, St Francis, St Dominic and St Augustine monasteries, which lost most of their centuries-old facilities.

An example of the religious compounds architecture is St Dominic's monastery. A congregation of Spanish friars initiated in 1587 the erection of the first building in timber. The current version of the church is from 1721. The church interior organisation and bell tower is from a medieval matrix, but the façade has mannerist and neoclassic inspiration with a baroque outlook, adapted to the local weather by including

Macao, vista da Penha (finais do século XIX). In Cecília Jorge e R. Beltrão Coelho, *Album Macau - 3* (Macao: Livros do Oriente, 1993).

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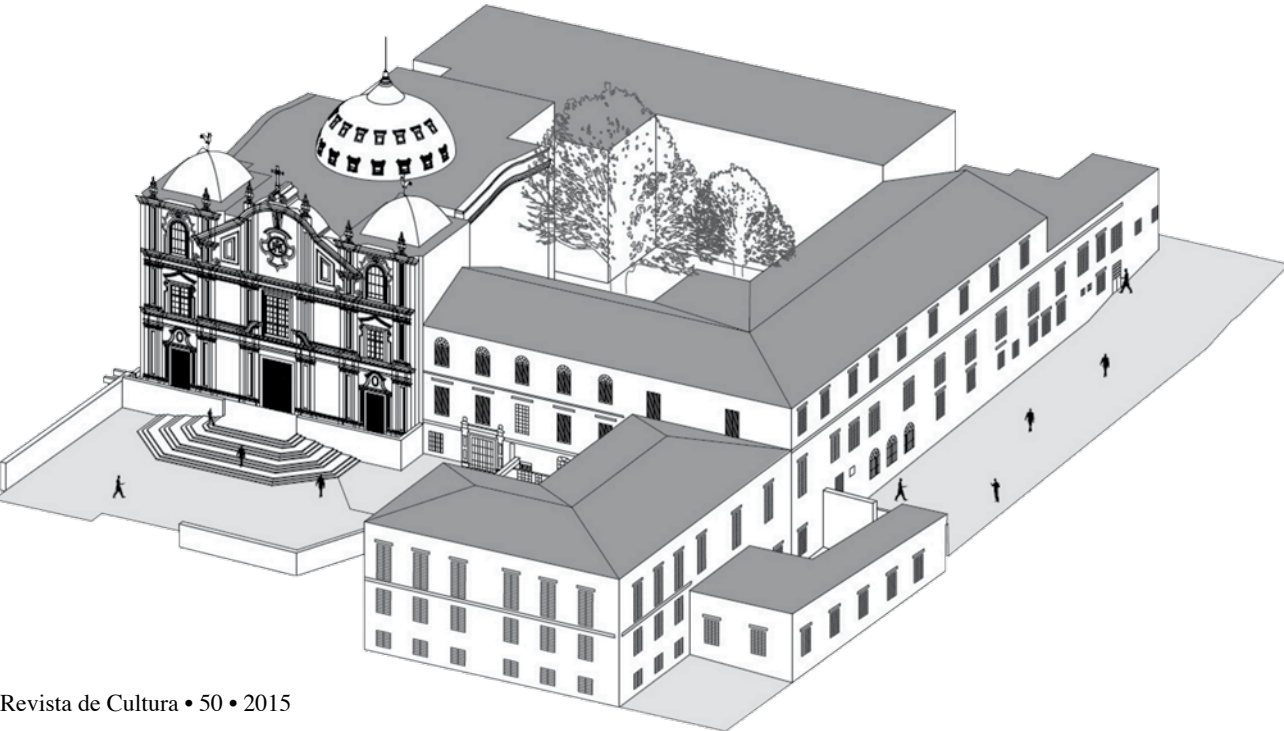
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large windows and doors for natural ventilation on all floors. In 1835 the friars were expelled and the monastery used by the police in 1867, and later by the fire department. Tragedy struck on 9 May 1874 when a thunderbolt hit the bell tower, igniting a fire there that spread to the high chapel, incurring repairs and reconstruction afterwards. The old cloister side entrance is linked with the bell tower by a covered gallery supported by arches. The old well in the centre of what remains of the cloister is now a small courtyard covered in cement. The only building surviving intact with few modern additions is the Seminary of St Joseph (Fig. 2), also called the Small St Paul, where the old university-level classes still function, provided by the University of St Joseph.

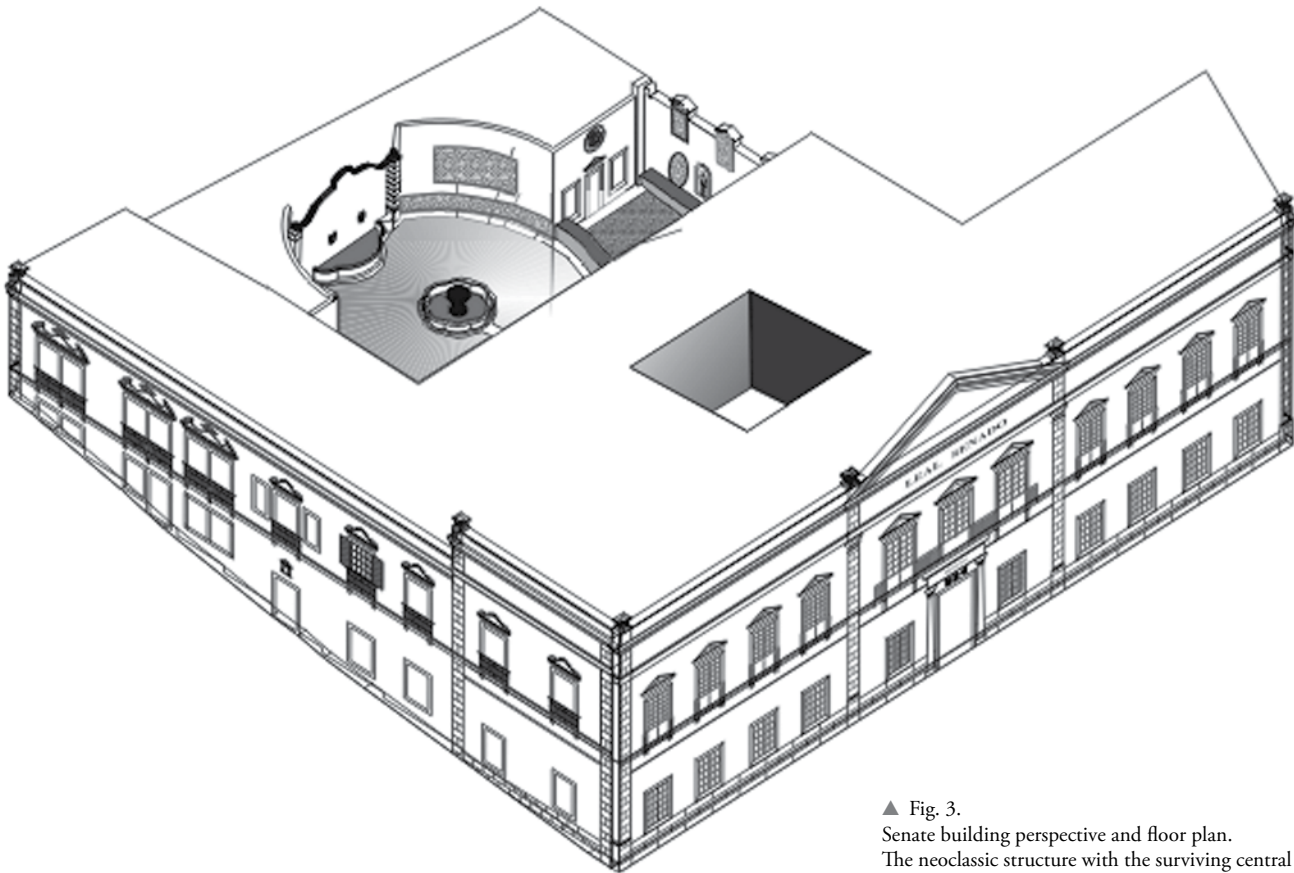
As institutional building typologies, the Portuguese developed mostly churches, fortifications and civic buildings for the city administration. The Senate (Fig. 3) was the public civic institution formed in 1582 for ruling the civic affairs of Macao, and in its near-400 years of existence had also functioned as the diplomatic interface with the imperial government in Canton and Beijing as well as Goa (India) and Lisbon (Portugal) and many cities in South East Asia. Through negotiations, the Senate helped the city sea trade survive, even in the difficult period of piracy infestation, when the Senate in cooperation with Canton organised

a fleet that defeated a large pirate fleet in 1809 with 20,000 rebels. This action earned the Senate the title of 'Leal' Loyal, which can be seen in the entrance hall of the Senate building. The cloisters were predominantly reserved for the community as a place for recollection. The concept of the cloister was influenced by the metaphor of the 'garden of paradise'. Religious orders compounds were places for worship but also schools and workshops, hospitable places with agrarian areas (orchards). St Paul's College, St Francisco, St Augustine and St Dominic monasteries were walled compounds, like citadels within the city.

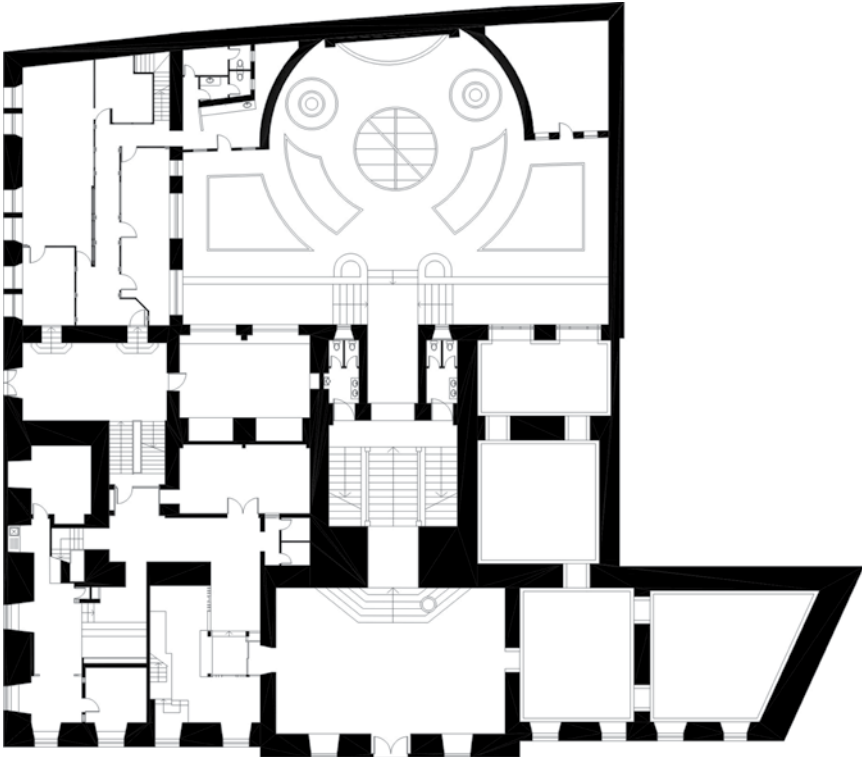
The Senate had different versions, many changes and reconstructions, evolving from a small mansion in a U-shape to an entrance-open courtyard to the future baroque extensions that survived until the current layout, dated at the main gate from 1876, then designed by a priest called Patricio de San Jose. The building receiving several improvements and modifications in 1939, and afterwards, in order to accommodate the evolution and transition from the Portuguese Leal Senado (Loyal Senate) to the present Institution for Civic and Municipal Affairs (IACM).



▼ Fig 2. St. Joseph Seminary, crystalises the monastery's typologies, walled compounds with a dominant public church, with several workshops, hospitality and education facilities developed around a courtyard. Drawing by the author and a team of USJ students.



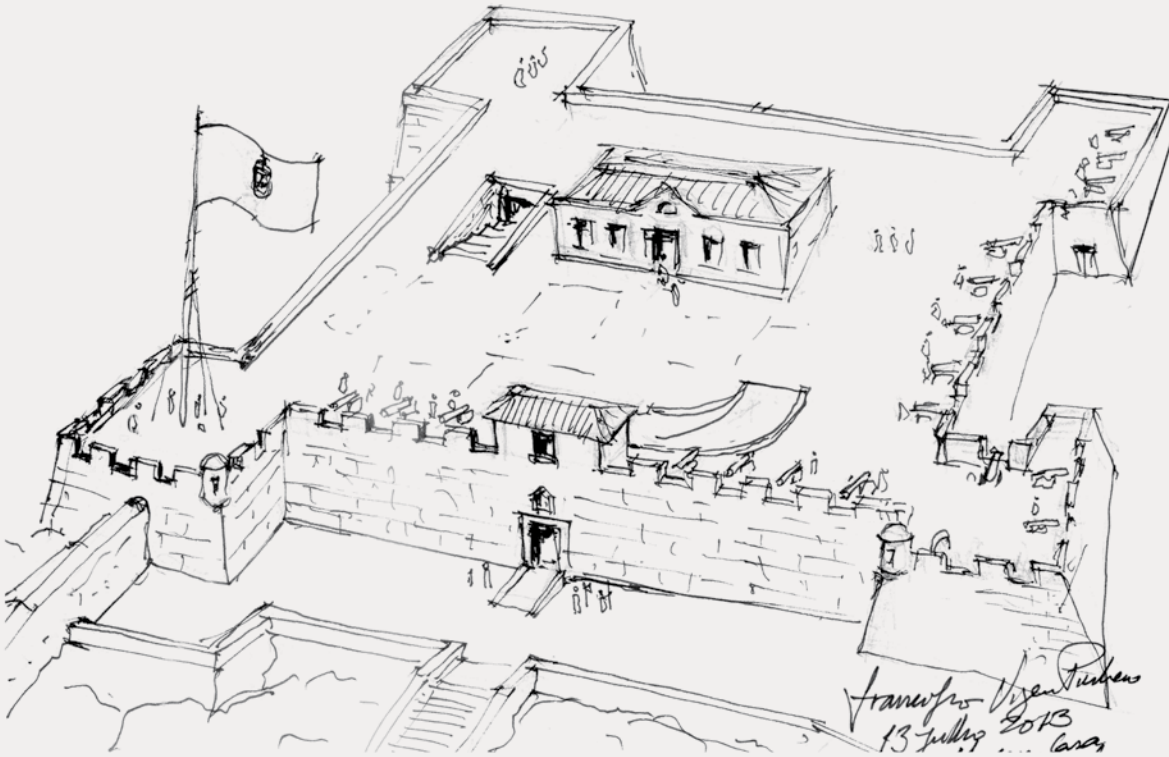
▲ Fig. 3. Senate building perspective and floor plan. The neoclassic structure with the surviving central and backyard courtyards. Drawing by the author and collaborators.





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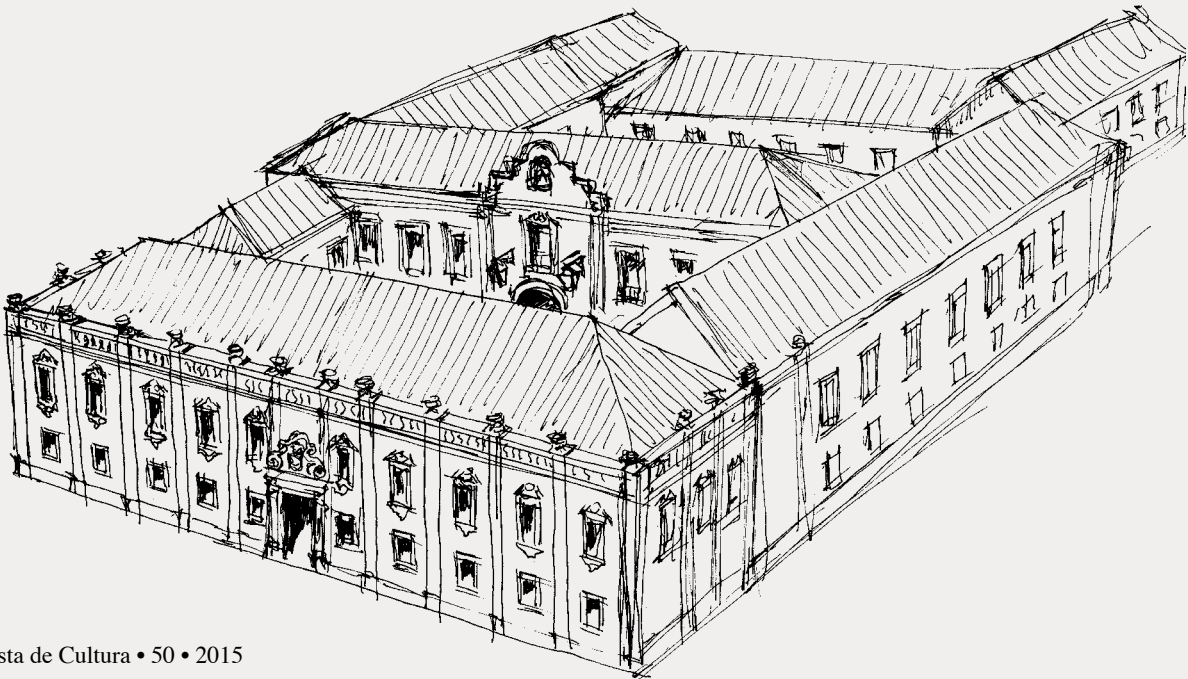
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These drawings by the author identify different buildings' typologies, religious, military and civilian, that have in common the use of the courtyard-orchard.

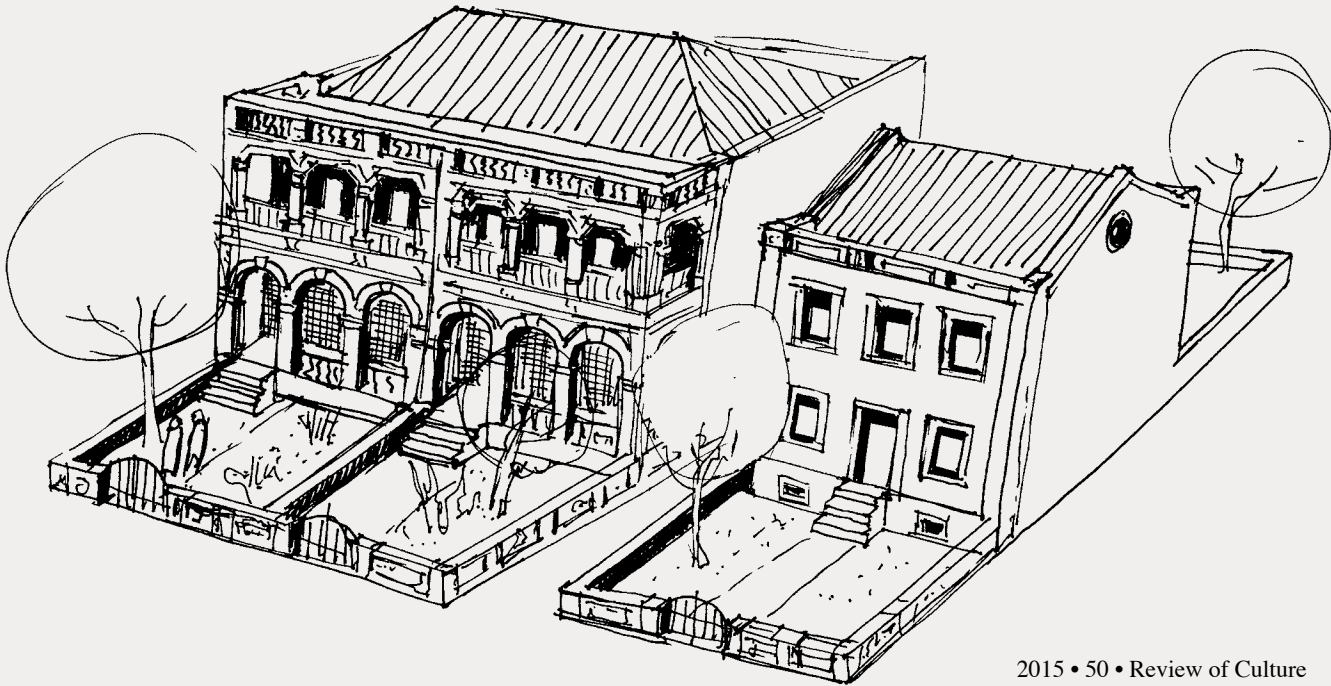
▲ Fig. 4. Conjectural reconstruction on St Francisco's Monastery and fort based in contemporary drawings and maps. The large church is the taller building, forming the public and entrance wing of the compound.

▼ Fig. 5. Conjectural layout of the 1880's municipal headquarters, the 'Loyal Senate', based on old maps and drawings. This was the most versatile building in Macao, which throughout history accommodated multiple functions ranging from foreign office to commercial brokers, school, clinic, post office, museum, court of justice, and jail.



▲ Fig. 6. Monte Fort. The center of the high ground walled platform served as a courtyard, a pattern inherited from the medieval castles. Ammunition and water reserves were kept underground. The arrow-shape bastion corners were an influence of the 'Italian' design to help provide cross fire to the main walls.

▼ Fig. 7. Portuguese mansions outside the old city walls. Wealthy to middle class in earlier 20<sup>th</sup> century developed two storey mansions, some with balconies, with front and back courtyards representing the attachment to nature of a rural society, as well the buffer zone between the family and the public space of the street.





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Fig. 8. Conjectural typology, based on Macao's Museum model, of the first reclamation at the inner harbour. Drawing by the author.

Military typologies are well known; there is no space in this paper for their analysis, just brief graphic references.

#### SOCIAL AND CULTURAL DIVISION OF THE CITY

For centuries Macao was mostly formed by a Portuguese and Creole (Portuguese-Asian mixed-blood) society with little participation by the Chinese due to restrictions imposed by Ming and Qing authorities. The Chinatown at the Inner Harbour of Macao developed separately from the Christian city that ended in the gates of St Anthony and Campo at Camoes Square and Rua do Campo. St Lazarus quarters for lepers was outside the city limits.

Amaro (1996) mentions that Macao developed geographically and administratively into two separate areas. As late as 1867, a police report stated that, 'twenty years ago Macao constituted two separate quarters which were like two different cities; Chinese... and Christian... both [were] without police, completely separated with unequal rights and without reciprocity

of interests'.<sup>11</sup> The lack of policemen in the Chinese quarter (Inner Harbour) was a constant factor for centuries under the Portuguese, resulting in the division of jurisdiction on Chinese and Portuguese subjects between the Mandarins and the Senate. This shows the flexibility of Macao that adopted different urban models, Chinese and Portuguese, sharing the narrow peninsula. Chinatown developed on top of the muddy silt beaches in the inner harbour that faces, a few metres across the river, the hills of Mainland China. By the end of the 19<sup>th</sup> century a sea wall and land reclamation transformed the concave beached in straight line piers (Fig. 8), promoting commerce and urban development, creating spaces for housing, workshops, temples, hotels, restaurants and 'small casinos' (then called Fan Tan Houses).

The dominant typology in the Inner Harbour is the shop house, with a four to five metre-wide façade, with lengths that can reach 30 metres. The main structure is formed by two parallel brick walls that support a two-sided gable roof. A steep stair connects the wooden floors that are supported by standard round wooden beams. Kitchens and



Fig. 9. Gated communities with rows of houses like this one representing the Pátio das Seis Casas (Six Houses Courtyard). Drawing by the author.

bathrooms are progressively occupying the courtyard space. Between the gable walls a narrow door is often the alternative access to the building. There are many alleys that contain gated communities, like the six houses courtyard (Fig. 9) where several families lived, supplied by a well. The gates of the alley were closed in the evening.

Nowadays, the Chinese courtyard typology is more relevant in Chinese temples, particularly the larger ones on flat ground like Ling Fong and the Kun Ian temples, both at the foot of Mong Ha Hill. Pavilions and courtyards aligned from the hill towards a body of water represented by rice fields and the beach, are now filled and occupied by new construction.

In 1793 the restrictive measures for Chinese living in Macao were removed, a policy that contributed to increasing the Chinese population and improved the city trade. However, after the founding of British Hong Kong in 1842, there was an exodus of the foreign community of Macao, which moved decisively to the new British colony, abandoning many of the large mansions rented by the Macanese to the foreign western community.

The first colonial governor, Ferreira do Amaral, was sent to Macao in 1847 to implement a model similar to Hong Kong, to contain the economic and social decline of Macao. As a dictator he opposed the Loyal Senate methods of constant negotiation with the Chinese mandarins. He ordered expel Chinese rulers in the city, planning the city expansion to the border's gate and absorbing St Lazarus and Mong Ha settlements.

#### HYGIENIC REASONS FOR DEVELOPING NEW TYPOLOGIES

The organisation of different urban fabrics in Macao is the result of the settling of different social and cultural communities. Outside the city walls were the people expelled from the Christian or Chinese towns, who were made 'untouchable' by the disease of leprosy, needing to live in a separate walled community called lazaretto in the St Lazarus quarters, where Macao priests assisted with medical and spiritual care.

St Lazarus church was a large building with a hospice for lepers. Nearby an unhealthy surrounding landscape developed, known as Volong Orchard, in this

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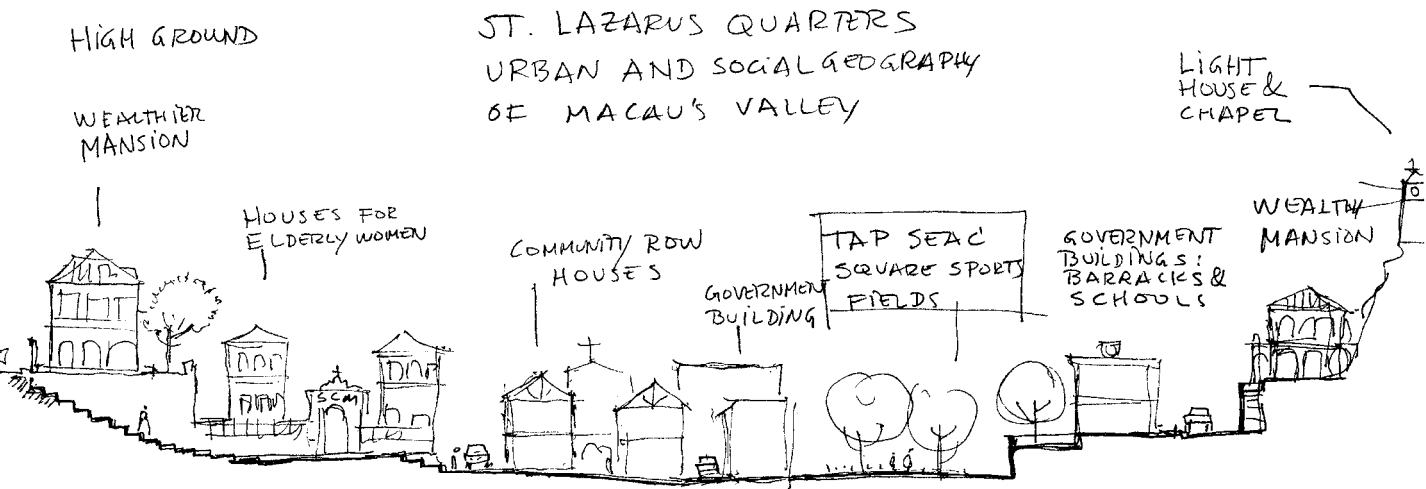


Fig. 10. The geographic and social structure of Macao's Valley (St Lazarus area). Drawing by the author.

'Macao's Valley', between Guia and Monte Fort hills. On this side of the valley as well in the opposite Mitra area (on the northern slopes below St January Hospital) semi-rural communities settled in wooden and straw buildings, where people lived mixed with animals and the accumulation of sewage and rain waters. This valley was a breeding ground for epidemics, such as the bubonic plague that took several victims in 1895, like in Hong Kong, due to the poor sanitary conditions of buildings and lack of infrastructure in the organic developed and self-organised Chinese quarters.

Continuing epidemic devastations were the motive for the demolition and construction of the new

quarters of St Lazarus that took place in 1903, with the elaboration of probably the first social house experiment in Asia, a project by architect Caruso. First the place was levelled and organised in different platforms layers, the higher ground (developed later) having mansions for the wealthier. On the lower ground, oriented towards St Lazarus Church, were the social houses owned by the Holy House of Mercy (at that time a Catholic charity institution) that often collaborated with the government in providing education and medical facilities for the benefit of the population.

On the southern part, the higher ground was also occupied by mansions, then in a lower platform by

Fig. 11. The hybrid Chinese-Portuguese social housing, probably the first western model in Asia. Drawing courtesy of Tam Ian Kan.



Fig. 12. The current adaptation and revitalisation of the houses with the introduction of a square and a large amphitheater volume in the opposite corner. Drawing courtesy of Tam Ian Kan.

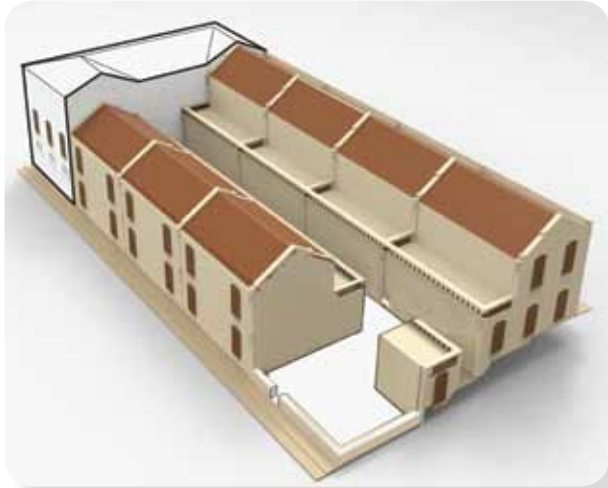


Fig. 13. Floor plan and elevations of the 1937 Art Deco Mansions at Lilau Square. Drawing by the author based in a copy of the original plan.

public spaces for gardens, schools and military facilities. Thus the geographic morphologic organisation reflected the social stratification of the city (Fig. 10).

The St Lazarus social quarters created a new urban and architectural typology with hybrid Portuguese and Chinese typologies probably influenced by the long central corridor (Chinese alleys and courtyards, 'patios' or 'travessas') and the Portuguese elevated balcony and flat or plain architecture (Fig. 11), with a well and toilet incorporated in the house, with separate rooms for servants. This is an interesting case of mixing the Chinese public space concept with the Portuguese house organisation.

The recent intervention to open an entrance square in the St Lazarus housing facilities (Fig. 12), now used as a music academy, and the planned large volume of an auditorium in the opposite corner, will change and adulterate the original corridor typology of this earlier social housing model.

The Hygienist ideas of the late 19<sup>th</sup> century still influenced the interior layout of government and private housing through the middle of the 20<sup>th</sup> century, as observed in Lilau Square the only surviving case, the 1937 art deco residence (Fig. 13), designed by Canavarro Nolasco, that we can designate as the 'bridged house' where the residential parts for the



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families are connected by bridges and corridors to a backyard annex facility serving as kitchen, storage and servants' quarters. Another unique feature of this building type is that each family flat had a separate garden in the backyard.

MACAO'S URBAN TRADITION OF PUBLIC SQUARES

In the Portuguese urban tradition, the important institutional buildings like churches and municipal government buildings, have a square in front, called a 'largo' which means 'wide' in Portuguese. 'Largos' often originated by adapting an empty place or enlarging part of a street for community use. Squares have a very important role as places for informal meetings, for execution of justice, for holding seasonal markets, for playing games and popular entertainment, and for religious processions or military parades.

Senate Square was home to several shops and important institutions such as the Holy House of Mercy, founded in 1569 by Macao's bishop as an institution to support the needy. Many buildings in this square kept their facades unchanged, but their interior layouts changed in order to accommodate new functions. This was the case of the so-called Ritz building, on the corner opposite to the Holy House. It was the former Ka Pan Hotel, later used as the headquarters of the Electric Company of Macao until the late 1980s. The building was divided in two parts, one commercial, the other for government use, then used as the headquarters of the Tourism Department,

and a few years ago adapted to be a Tourism Business Centre. The Pharmacia Popular near the Holy House of Mercy is one of the oldest commercial buildings in the square, probably dating from the end of the 19<sup>th</sup> century, designed in a simple style with no decorations, so common of the traditional whitewashed Portuguese Mediterranean buildings.<sup>13</sup> The simplicity of the pharmacy contrasts with the eclectic decoration of the cornices, arched windows, colonnades and archways of the surrounding buildings, which display a uniform rhythm that contributes to the holistic classic ambience of the square. The two-storey buildings at the corner of the square were demolished, giving way in 1931 during the pre-war construction boom, to the majestic Post Office,<sup>14</sup> with its massive volume overwhelming the surrounding buildings elsewhere in the square, thus announcing an international trend to de-characterise the human-scaled Mediterranean urban environment so common in the squares of Macao. The introduction of cars in squares, which were mostly designed for pedestrian use, further removed the citizens from their traditional community use. In the 1980s the Senate Square was popularly known as 'fountain pool' (Pan Seui Chi) after the construction of a trapezoidal fountain that resembled a swimming pool, with vehicular traffic controlling the use of the square.

In order to rehabilitate and bring back the square to its original use, cars and the 'pool' were removed and replaced by a sea of Portuguese cobblestones. In the place of an old well, removed decades before, a circular fountain was installed, decorated with an armillary sphere, a traditional symbol of the 16<sup>th</sup> century

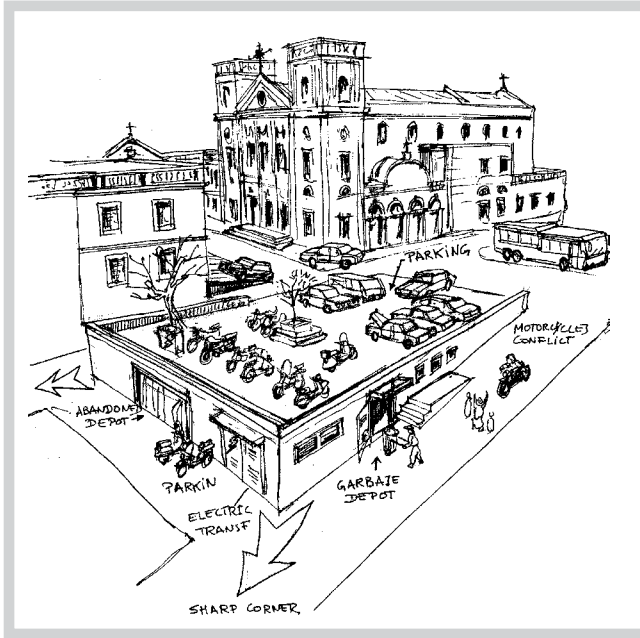


Fig. 16. Cathedral Square before the intervention with several *feng shui* and functional problems. The square was mostly used as a car park.



Fig. 17. Cathedral Square after the 2004 rehabilitation, removing the car park, incorporating trees and fountains and cobblestones, traditional elements of Macao's urban DNA.

Portuguese discoveries. Paving squares and sidewalks with the mosaic of Portuguese cobblestones was done, in general, with five-by-five centimetre squares of white limestone and black basalt, a recyclable and highly reusable material that breaks the ugly monotony of grey cement, which is a 'modern' high-pollution composite. Macao pavements are often decorated images of the Portuguese-Chinese link with the sea.

In the first years of the 1990s, following similar policies in Portugal, there was an intent to restrict traffic in the Senate (Fig. 14 and 15) and St Domingo's squares and transform them for pedestrian use, meeting strong opposition from the local business community who believed that parking and traffic are necessary for business survival. However, the political will prevailed and the square was closed to traffic and parking totally removed during the 1993-34 rehabilitation.

The whole design process, approximately 20 years old, is a contemporary intervention that followed Macao's cultural DNA, the city tradition, and as such was incorporated in the last edition of UNESCO's list of places that are representative of Macao's World Heritage.

Considering that Macao was officially a Christian city, 'City of the Holy Name of God in Macao', the Cathedral Square was the centre of Macao's diocese that was established in 1576, with the gigantic task of

providing missionary support in many countries in Asia, including Korea, Thailand, Japan, and Vietnam. In the 19<sup>th</sup> century, the diocese of Macao was still in charge of the Catholics in Heung San (Canton Province), Hainan Island, the Parish of St Pedro in Malacca, Malaysia, and St Joseph's Church in Singapore.

The facade of the previous cathedral faced the end point of the old central street (Rua Direita), starting near the A-Ma Temple and running along the hilly ridge all the way to the Christian downtown. The first cathedral on this site, like most primitive churches in Macao, was made of unstable materials like the previously mentioned 'taipa' wood, and thatched straw for the roof, later replaced with larger and more solid components.<sup>15</sup> The 1850<sup>16</sup> cathedral is dedicated to the Nativity of Our Lady, the Baby Mary, as represented in the stained glass window at the centre of the high chapel.<sup>17</sup> (Fig. 16 and 17)

After World War II, most squares in Macao were invaded by cars, which occupied the better places that had previously been used for centuries for pedestrians. After a public consultation with the local community the square was rehabilitated in 2004 with the intention of returning it to its original function as well as to dignify the Cathedral Square, following similar principles and practices to the ones applied in

Fig. 14. Senate Square before the rehabilitation. Postcard by Lei Chiu Van.



Fig. 15. Senate Square after 1994. Photo courtesy of Macao Government Information Bureau.





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Senate Square. Cars were removed, trees were added, and a fountain was installed, inspired by Portuguese tradition. Decorative elements in the square are related to the meaning of the Church or Christian history, such as the seven sacraments in the seven-fold shape of the fountain, the image of the mother of Jesus, and so on. A replica was made of the fragmented stone cross that was broken during a strong typhoon. In 2005, both the Cathedral and the Cathedral Square were included in the UNESCO list recognising this part of the Historic Centre of Macao as World Heritage; unique inheritance for Macao and China because this project, like the ones in the Senate and Lilau squares, followed Macao’s urban and architectural traditions, not ‘contemporary’ re-interpretations.

The project addressed modern interventions that contradicted Chinese culture connected with bad feng shui represented in Fig. 16. At the intersection of the square with the two alleys going toward St Dominic’s Square (St Domingo’s and Bishop’s Alley) there were two sharp corner walls in poor structural condition and inconvenient in terms of local principles for an auspicious and comfortable ambience.<sup>18</sup> The two sharp edges of the square’s two lower corners, which threatened St. Dominic’s Alley and Bishop’s Alley, were chamfered by two fountains, related to the history of Macao as a Christian city. The two fountains (Fig. 17) have motifs related to the beliefs and traditions of Macao as a Christian city. Decorative blue tiles were used to raise the low wall, making the place safe for children as well as providing new seats. Two new trees were planted, providing shade during sunny days. Between the two above-mentioned alleys there are several decorative Portuguese blue tiles, called *azulejos*, with views of this neighbourhood in the 1830s painted by George Chinnery. Garbage refuge and power units have been concealed behind landscaped screens.

The first fountain at Bishop’s Alley has an enlarged and reinforced structure to sustain a large tree in the corner. The frame of the tiles panel was conceived as a ‘Time Gate’, where the observer can contemplate a 17<sup>th</sup> century tiled Bocarro’s map (Fig. 1) of Macao showing the location of the religious, military, civic, and residential buildings of the period. The corner toward St Dominic’s Alley received a new fountain wall, carved by Fujian Province masons (a Macao tradition), with an image of Our Lady with child Jesus in her arms, and a lion symbolic of the tribe of Judah. The dove represents

the Holy Spirit of Love, and the Sun and Moon, common in Macao as representing the effusion of divine grace reflected in the moon (Our Lady) that distributes light representing grace and blessings to the people passing by. The use of squares in Macao is a century-old tradition, a heritage that is successfully kept alive by contemporary interventions respectful of our cultural DNA code.

LAND RECLAMATIONS AND NEW TYPOLOGIES

Due to its territorial boundaries and high density (19,000/km2 inhabitants per square kilometre) Macao could only grow by expansion of waterfront land reclamations, or by ‘jumping’ to neighboring islands like Taipa, Coloane and, in the 21<sup>st</sup> century, to neighbouring Hengqing Island (University of Macao Campus). The lack of land for expansion and development was critical by mid-19<sup>th</sup> century. In 1912 Macao Territory (with Taipa and Coloane islands) had 11.6 square km; it currently<sup>20</sup> has 30.3 square km. First narrow strips were reclaimed at the Inner Harbour, then the areas near the Border’s Gate, Hac Sa Van and Fai Chi Kei, followed by a more organised plan for the larger land bank: the Outer Harbour. This harbour reclamation developed in two phases; the ZAPE (Zona de Aterros do Porto Exterior; Zone Reclamation of the Outer Harbour) followed by the construction of NAPE (Novos Aterros do Porto Exterior; New Land Reclamation at the Outer Harbour) and the closure of Praia Grande Bay, creating two artificial lakes. New land reclamations were free of the typical constraints of the old city, like narrow streets, low density buildings in order to respect the law of shadows,<sup>21</sup> congested facilities and lack of green areas and public facilities.

The NAPE started with an international competition, being developed by the well-known architects Siza Vieira (winner of the Pritzker price) and Fernando Távora (Lima, 2009). The plan incorporated the concept of portico-covered streets elaborated previously in San Ma Lou Avenue, as well as the rectangular grid quarters characteristic of Lisbon and other Portuguese cities after the 1755 earthquake and tsunami, followed by a fire that destroyed the historical organic fabric of the downtown centre of Lisbon (Fig. 18).

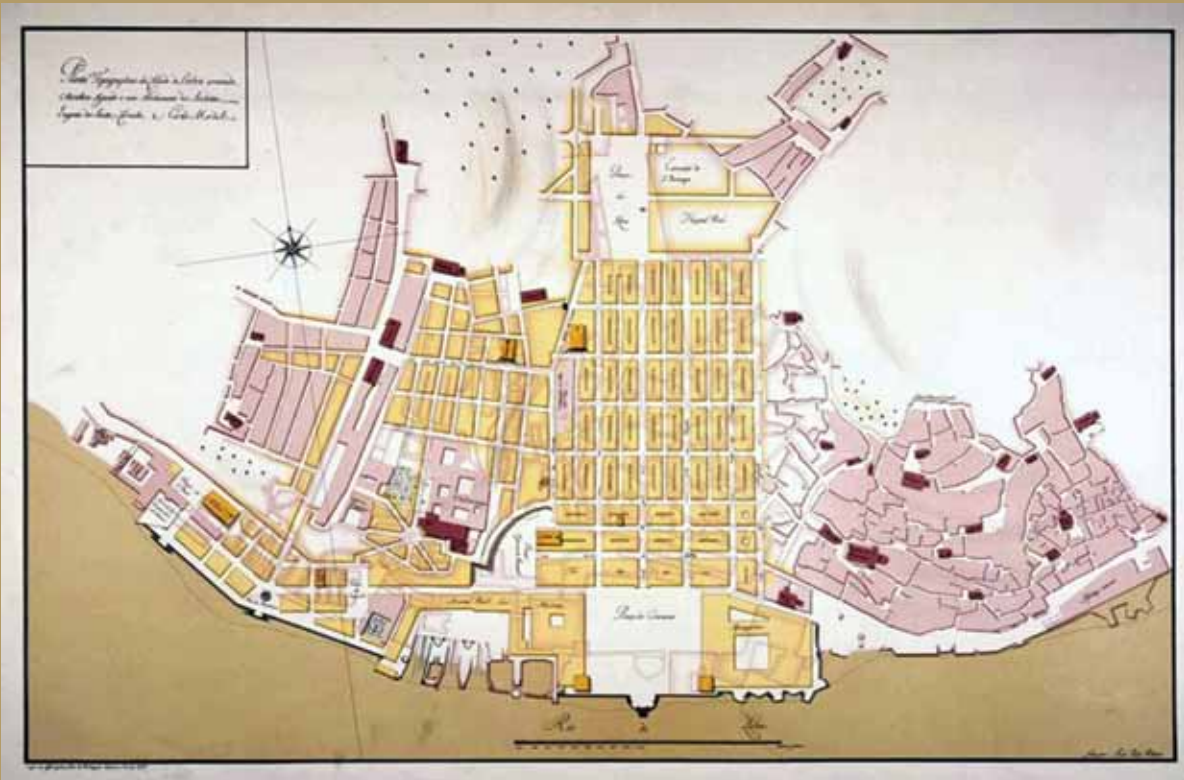
The new layout for the city centre reconstruction followed an orthogonal matrix with high-density buildings and small courtyards (Fig. 19). This urban

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Fig. 18. The medieval organic developed downtown of Lisbon until its destruction in the 1755 earthquake.

Fig. 19. The plan of an orthogonal urban matrix for the reconstruction of Lisbon downtown by Carlos Martel.





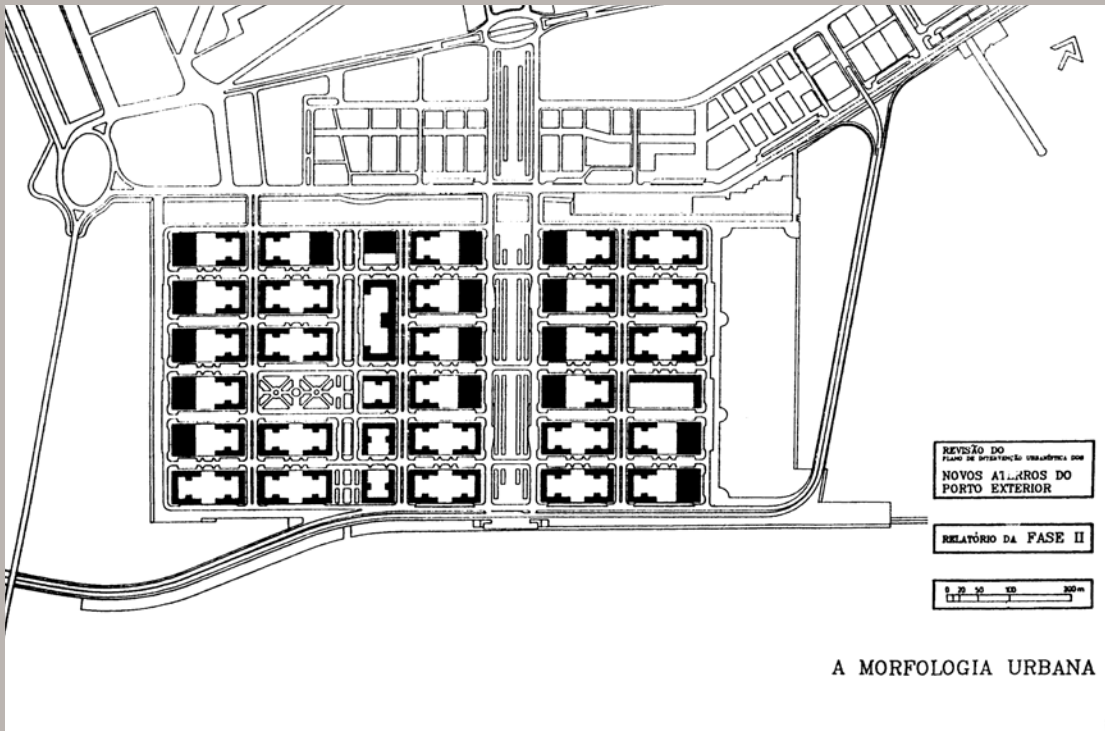
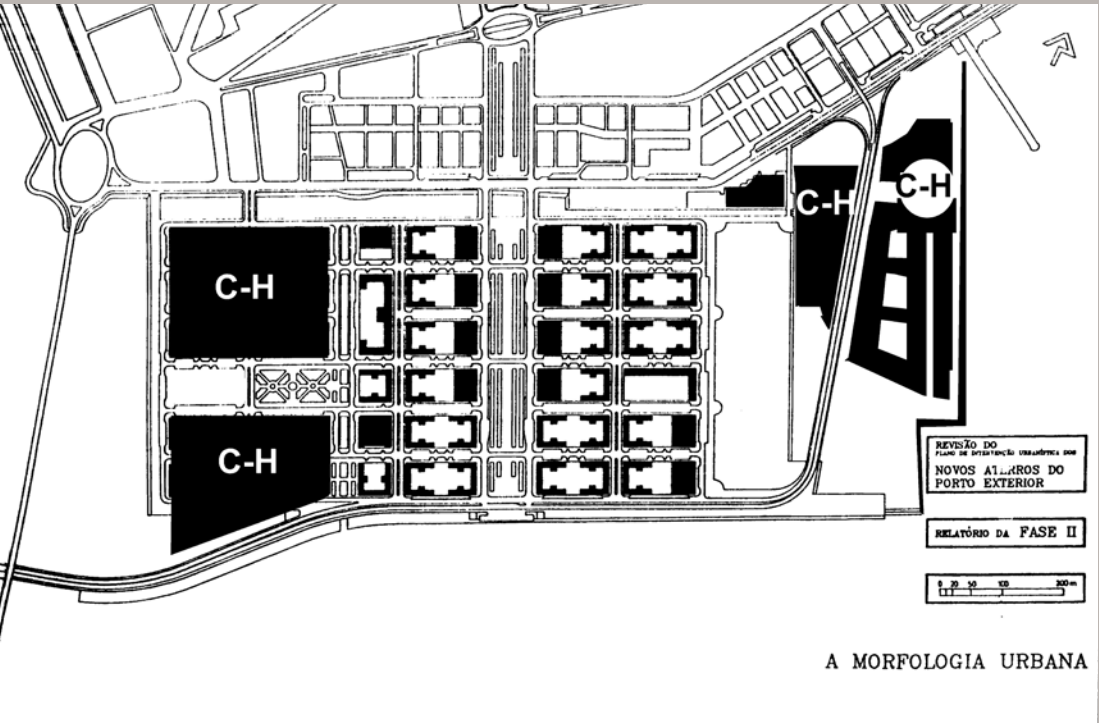


Fig. 20. The NAPE area, mostly for residential areas, with urban park, market and public swimming pool. Image from Government's Gazette (B.O.M) with NAPE Master Plan.

Fig. 21. NAPE after the gambling concession liberalisation. The large Casino Hotels (C-H) integrated resorts have a larger footprint in the urban fabric.



pattern was influential not only for the 19<sup>th</sup> century plan for the St Lazarus quarters, but also, on a larger scale, for the plan of NAPE (Fig. 20), that was organised in a reticulated grid centred in a large north-south central park for office buildings and residential units developed from east to west. The buildings follow a rigorous typology, with podium size 120 by 54 metres<sup>22</sup> long for parking and retail, which support U-shaped residential towers an average of fifteen floors high. The NAPE plan<sup>23</sup> had several areas for canals, parks, and a number of public facilities.

The 1920s ZAPE<sup>24</sup> was temporarily used as a military aviation (sea-planes) restricted area after 1941, then for several decades as farm land until the casino mogul Stanley Ho decided in the late 1960s to raise his flagship casino the Lisboa. The land, roads and blocks structure was ready in 1964 but urban blocks were developed only in the 1980s by having a mixed formula of Portuguese mansions at the hill side, institutional buildings that followed Lisbon's modern architecture (Liceu High School, Jet foil Terminal), iconic casinos like 'Lisboa' and Jai Alai, and the new typology of residential towers.

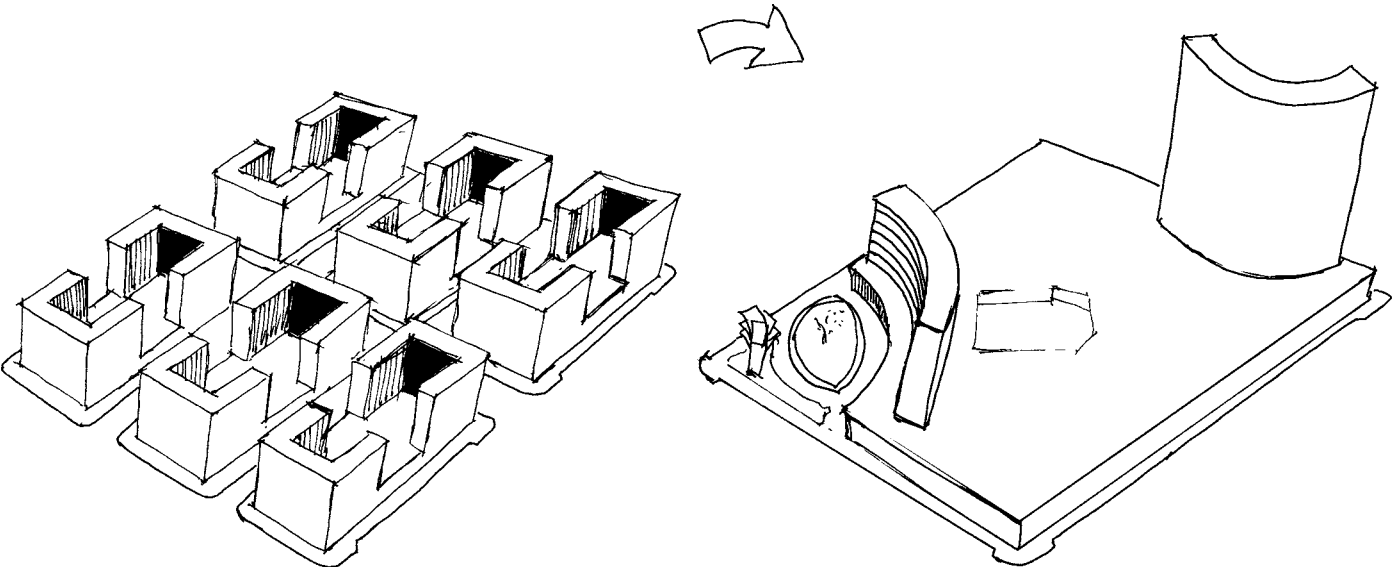
The dominant typology in the 20<sup>th</sup> century is the residential high-density tower imported directly from Hong Kong with a medium height of 20 floors, which by the early 21<sup>st</sup> century jumped above 45 floors, following Hong Kong practice.

At NAPE a grid layout was implemented with moderated high-rises in the central park style area. (Fig. 20. and 21)

The NAPE plan purpose was to provide in an organised and balanced way,<sup>25</sup> well-integrated residential areas with social and public facilities with green areas parking, etc. The original plan was foreseen as an investment ground for real estate development, which could liberate the old part of the city from overcrowding and growth density, a plan that never worked well<sup>26</sup> due to the speculative forces. However, with the liberalisation of the casino-gaming industry, there was a boom of construction for new casinos in NAPE that did not follow the height regulations and plot ratio of the master plan, thus creating some conflicts that led to the cancellation of NAPE plan regulations in 2006.<sup>27</sup>

Due to the time constraints of the gambling contract concessions to six different operators, there was a race for the construction of new casinos with a design influenced by the mega malls type (Las Vegas) and tall towers (Hong Kong) maximising the use of space for mass tourism, creating a mega-plot size, that soon absorbed large urban areas in NAPE and COTAI (land reclamation between Coloane and Taipa Islands). The invasion of the new Las Vegas Casino-Hotel typology, technically called Integrated Resort (I.R), is shown in NAPE urban morphology, replacing six residential and

Fig. 22. Replacement of dominant typologies. Six residential and commercial blocks (left), double U shape; courtyard oriented, and streets in NAPE area in to (right) were replaced by a large Integrated Resort (Wynn casino and hotel compound), with an autistic urban behaviour disconnected from the urban environment and natural landscape. Drawing by the author.





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mixed-use blocks (Fig. 22) in the Wynn and MGM compounds.

Casinos’ mega-plots changed the previous ‘walkability’ condition of the city, which suffered different phases of transformations; from a human scale inherited from medieval urban practices towards an automobile-dominated but unsustainable city like Los Angeles as described by Newman and Kenworthy (1999), where public transportation plays a key factor in moving and managing throughout the city. Is this the last paradigm of Macao? Can the long Chinese-Portuguese cultural DNA identity survive the inflow of international-style megastructures? Knowing the past is the best answer to preserve the future as recommended by Confucius: ‘Study the past, if you would divine the future’.

CONCLUSION

During the 20<sup>th</sup> century we observe an invasion and dominance of Hong Kong residential typologies, which grew in size and shape in the 21<sup>st</sup> century under the influence of Las Vegas models. In order to preserve the historical Chinese and Portuguese urban fabrics,

there should be better landscaping and reduced density in the historical centre, and expansion of the new towns of the city in a sustainable and fast way in direct cooperation with Zhuhai, particularly with Hengqing island. There is no possibility to improve the quality of life in the overcrowded historical centre without a commitment to create new pedestrian-exclusive areas, squares, alleys and streets, which should be rehabilitated in accordance with the city’s cultural DNA by following the ‘code’, the typologies and traditions that constitute the city’s ‘World Heritage’ legacy. **RC**

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NOTES

1 The Azuchi tower typology built by the unifier Daimio Oda Nobunaga was influenced by his friend, the Portuguese Jesuit Luis Frois.  
2 Zheng Zhilong 郑芝龙 (1604-1661), the father of Koxinga (Zheng Chenggong 郑成功), the liberator of Taiwan, was baptised in Macao as Nicholas Gaspar.  
3 Iberian society suffered deep transformations from the semi agrarian Celts villages of clustered round stone houses agglomerated without streets on top of hills surrounded by walls in the 2<sup>nd</sup> century B.C. Roman Euclidian orthogonal matrix of well-organised streets, squares and city blocks built in stone, bricks and tiles, inhabited by a mix formed by a society of slaves and rulers, with some free citizens.  
4 A technique common in North Africa  
5 As the ones founded in the archeological remains of Recopolis  
6 The Church was the only institution that preserved the Latin language, culture and education of the Roman civilisation, which survived in monasteries. The Visigoths form the nobility that have ruling and military functions until 711AD when an army of the Muslim Caliphate invaded Spain and defeated the Visigoths. A few survived in small strongholds in northern Spain, then spread to the peninsula with the construction of geo strategically located castles on top of hills.  
7 Detailed described by in Guo Ping and Wu Zhiliang (2007) several other missions, either official or by private initiative of Portuguese explorers and soldiers of fortune meet positive and negative results.  
8 Pedro Dias, *A Urbanizacao e a Arquitectura dos Portugueses em Macau, 1557-1911*. Lisbon: Portugal Telecom, 2005, p. 16.

9 Between the buffer zone from the Portuguese city to the Chinese Village, was built in late 16<sup>th</sup> century St. Lazarus quarters, the town for lepers.  
10 A.M. Martins do Vale, *Os Portugueses em Macao (1750-1800)*. Macao: Instituto Português do Oriente, 1997.  
11 *Boletim Oficial da Provincia de Macao e Timor*, 1867, p. 225.  
12 One of them has a well, which is historically significant because it is the place where Coronel Mesquita died in 1880. The building where Mesquita lived was demolished and replaced.  
13 This was a 15<sup>th</sup> century rule in Portugal, applied to all colonies and overseas settlements.  
14 The Maritime Post Services existed since 1884, depending on the Senate and Hong Kong Post Office. The 2<sup>nd</sup> headquarters were in Praia Grande Avenue, near the court of justice.  
15 After several repairs and reconstructions of the original church, it was decided to build a new and larger church, rotated 90 degrees clockwise to better fit the available space and provide room for the bishop’s palace. Promoted by Bishop Dom Jeronimo da Matta, the new construction begun in 1844, was designed in a neoclassical style by the Macanese architect Jose Thomas de Aquino (1804–1852), who also designed St Lawrence’s Church, the Government Palace and Residence, and the interiors of St Augustine’s monastery (for use as a Military Hospital).  
16 Pedro Dias, *A Urbanizacao e a Arquitectura dos Portugueses em Macao, 1557-1911*, p. 136.

17 During the super typhoon on 24 September, 1874, the two crowning pinnacles of the Cathedral bell towers were destroyed, the ‘Zimborios’, (the columns supporting a small dome) collapsed, piercing the roof, falling over the choir and smashing the wooden floor. This typhoon not only destroyed hundreds of buildings, but also thousands of ships and human lives. The church underwent several repairs, losing the gracious columns and cupolas in the side towers, as well as losing the vivid and cherished yellow coloration, which was plastered over in 1937 with an imitation of stone called Shanghai Plaster.  
18 This is related to *feng shui* geomancy, which considers sharp corners to be creators of negative energies.  
19 From Wikipedia, Macao entry.  
20 Ibid.  
21 The law of shadows was implemented on 15 November 1963 (Law Decree 42/80/M) determining the angle of 76 degrees from the top of the building to the street opposite, avoiding touching the opposite building in order to protect the right of all to receive natural light and ventilation.  
22 Measure based on CAD maps.

23 The careful and detailed 175 pages of master plan of NAPE were elaborated in 1985 and published in 1991, was intended to provide for sustainable growth.  
24 Both NAPE and ZAPE were isolated from the old city and Mong Ha Village by the formidable natural defense of Guia Hill that was a military facility. The Guia hill barrier is only transverse to ZAPE-NAPE area by a tunnel built two decades ago and by roads in land reclamations at both ends of the foot of the hill.  
25 Decree Law N. 68/91/M published in the Government Gazette in April 18, 1991. 68/91/M and 69/91/M, dated from April 18, 1991, that approved the (Guidelines and Urban) Regulations for the Plan of Urban Intervention (PIU) of the New Reclaim Land of the Outer Harbor (NAPE), (PIUNAPE) and the (Guidelines and Urban) Regulation of the Urban Detail Plan of Reordering of Praia Grande Bay (Nam Wan) respectively.  
26 Campina Ferreira on the origin of NAPE plan in *Arquitectura Macau*, no. 10, August 1995, p. 38.  
27 The cancelation was done by an executive order of Macao’s Governor (CEO) on August 16, 2006.

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